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IN

# Poland Spring

MAINE

## AT THE NEW ENGLAND W.W.A.

*a hearty welcome awaits you*

Here's an opportunity for Water Works men to visit a water supply that really is different. From Poland Spring, water internationally famed for its curative properties is shipped to every civilized country in the world. The entire bottling process, from the source of supply, through glass and silver tubes, into the bottles, can be watched through plate glass walls of the bottling house. That is only one of the New England Convention attractions—others are as limitless as the spring water from which the spa takes its name.

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**PITTSBURGH WATER METERS**

# Low-Rent Housing Gets Federal Aid

## *United States Housing Act of* 1937

WITH the signature of President Roosevelt, on September 2, the Wagner-Steagall Low Rent Housing Bill, enacted by Congress just before adjournment on August 21, has become the United States Housing Act of 1937.

The major changes and additions since the bill was first introduced include: reduction of the bond issue from one billion to five hundred million dollars; reduction of the appropriation for annual contributions and administrative expenses for the initial three-year program from $51,000,000 to $26,000,000; local loans of 10 per cent of the development and acquisition cost; local contributions of 20 per cent of the annual grants; obligatory demolition of substantially as many substandard units as are built except that demolition may be deferred where shortage exists; limitation of cost to the average cost to private enterprise in the same locality with a maximum cost of $4,000 per unit except in cities of 500,000 and over where the maximum is $5,000; limitation of expenditures that may be made in any one state; provision for capital grants of 25 per cent plus 15 per cent from relief funds; creation of the U. S. Housing Authority within the Department of the Interior with one Administrator.

### *Main Features of the Act*

For the following analysis of the main provisions of the Act, THE AMERICAN CITY is indebted to the Housing Legislation Information Office:

1. *Purpose.*—A long-term, permanent program of Federal aid to state and local governments and their agencies for the provision of decent housing for families of lowest income and for slum clearance.

2. *Creates* a permanent United States Housing Authority within the Department of the Interior. The powers of the Authority are vested in an Administrator, appointed for five years by the President with the consent of the Senate. The President may transfer existing housing projects to the Authority.

3. *Occupancy* of all projects is strictly limited to lowest income families which are not being adequately housed by private building and whose income is less than five times the rent (including utilities), or six times the rent for families with three or more children.

4. *Loans* may be made to local public housing agencies for the financing of low-rent housing projects constructed by them. These loans are limited to 90 per cent of the cost of projects when annual contributions or capital grants are made. All loans bear interest at not less than the cost of money to the Federal Government plus ½ of 1 per cent, and must be repaid in not more than 60 years.

5. *Bonds* guaranteed by the United States may be issued by the Authority to raise funds for these loans in the following amounts: on and after July 1, 1937, $100,000,000; on and after July 1, 1938, $200,000,000; and on and after July 1, 1939, $200,000,000. These bond issues together with interest will be repaid from the proceeds of loans on projects.

6. *Annual contributions* may be made to local public housing authorities on projects developed by them. Annual grants are limited to amounts necessary to achieve low rents, but in no case may exceed the yield at Federal going rate of interest plus 1 per cent on the cost of projects. Annual grants will be contracted for in advance to run for not more than 60 years; if made for 20 years or more, the amount is subject to revision after 10 years, and every 5 years thereafter. During the next 3 years contracts may be entered into providing for contributions up to a total of $20,000,000 per year, without further authorization from Congress.

7. *Capital grants* may be made to local Public Housing Authorities as an alternative to annual grants. Capital grants are limited to 25 per cent of the cost of the project payable from the funds of the Authority, plus an additional 15 per cent which the President may allocate from relief funds for the payment of labor. Capital grants from the funds of the Authority are limited to a total of $30,000,000 without further authorization from Congress.

8. *Local contributions* are required in connection with all projects on which the Authority makes annual contributions or capital grants. In the case of annual contributions a local government must contribute at least 20 per cent of the annual contribution either in cash or tax remissions or exemptions. In the case of capital grants, a local government must contribute at least 20 per cent of the project cost either in cash, land, or the capitalized value of community facilities, services, or tax remissions or exemptions.

9. *Slum clearance* is required whenever annual contributions or capital grants are made. Provision satisfactory to the Authority must be made for the elimination of slum dwellings equal in number to those in the new project, but this elimination may be deferred in the case of a low-rent housing shortage so acute as to force dangerous overcrowding.

10. *Cost of dwellings* (exclusive of land and non-dwelling facilities) is limited to $1,000 per room and $4,000 per unit in cities of less than 500,000, and $1,250 per room and $5,000 per unit in cities of over 500,000. Furthermore, the average cost of dwellings in any project may not exceed the average cost of dwellings currently produced by private enterprise in the same locality, under the building requirements applicable to the proposed site and under labor standards not lower than those of the Act.

11. *Limitation of expenditure* is made so that no state may receive more than 10 per cent of the funds provided.

12. *Protection* of low-rent character of projects is definitely secured; and labor is assured of fair wages and standard working conditions.

13. *Appropriation* of $26,000,000, available until expended, is authorized for operating expenses and the payment of annual grants.

14. *No provision* is made for loans to limited-profit housing agencies, nor is there any authorization for the further construction of demonstration projects by the central Authority.

### *Other Provisions*

The provision in the House draft of the bill, which would have made non-citizens of the United States ineligible as tenants of federally aided housing, was eliminated from the Act as adopted. The provision for research and experimentation by the United States Housing Authority, was dropped, but the publication and dissemination of housing information by the Authority are permitted.

A new provision in the Act as adopted stipulates that "any contract for a substantial loan may contain a condition requiring the maintenance of an open space or playground in connection with a housing project when deemed necessary by the Authority for the safety or health of children."

### *Comments*

From the National Housing Committee, of Washington, D. C., THE AMERICAN CITY has received the following comment:

On the whole and all things considered, the U. S. Housing Act of 1937 is an auspicious start in a field that the Federal Government should have entered twenty-five or more years ago. The complete solution of housing for all our low-income citizens is still to be attained; it does not lie mainly in the field of governmental activities, but rather in the field of private enterprise which should and must furnish adequate housing for even the lowest income groups at a cost that such groups can afford, without subsidy or any form of charity. And industry will supply this large field of potential business expansion at a reasonable profit to itself. It won't be done tomorrow, but that it will be done in a comparatively short time is the belief of most of the members of our Committee.

**Municipal officials and civic organizations desirous of securing for their cities an adequate share of Federal aid under the new Housing Act, will find practical suggestions as to procedure in an article written especially for The American City by Coleman Woodbury, Director of the National Association of Housing Officials, on pages 105 and 107 of this issue.**

# Bound For the MARTS OF AMERICA

Tremendous stacks of timber dot the Nation. Soon every piece will come forth as paper or pulp . . . essential materials for the tides of Commerce that flow through the Marts of America. And here again, there must be water by the millions of gallons. And here again, we find the world's greatest paper and pulp mills turning to Layne for a dependable supply of low cost water. For many years Layne Pumps and Well Water Systems have more than met the exacting requirements of the paper and pulp industry. So high in efficiency are the famous Layne Pumps and Well Water Systems that almost without exception they have been chosen by paper and pulp mill engineers throughout America and in many foreign countries.

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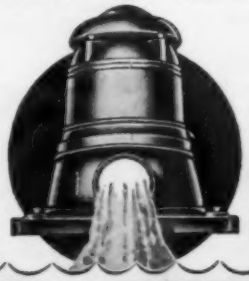


# LAYNE PUMPS

# WELL WATER SYSTEMS

# Our Municipal Notebook

## *The Transportation Problem*

THE local riding public is interested in getting on the next bus that comes along, finding a seat if possible, and reaching a definite destination in the shortest possible time compatible with safety and comfort and economy.

The public is always interested in the bus it will take. A 5-minute wait causes the public to say: "I had to wait 20 minutes for a bus." Frequency of service is therefore an index of good service to the riding public.

Given frequency of service, and thus freedom from stewing about when the next vehicle will appear, will cause the public mind to concentrate on the quality of the ride. The public now says: "You don't have any trouble in getting a bus; but the buses are old, jolty, poorly lighted, shabby." This indicates the company's second line of improvement.

To have enough vehicles to provide frequent service, and to have all these vehicles modern and thus a pleasure to ride in, costs money, which brings us to the viewpoint of the transportation company.

Public utilities of all kinds have a tendency to be managed and manned by "conservatives." In the first place, they are usually not in competition with each other. The mere fact of being a monopoly tends to a weakening of initiative and a distrust of achievement. "Suppose we do put on all these new coaches, how do we know there will be enough increased revenue to pay for them?" Yet properties deeply submerged in discouragement have been lifted and rehabilitated when taken hold of by men of courage, energy, knowledge and character.

In a city where there is a transportation problem, what can the mayor, the councilman or commissioner, the city manager, do to assist in its solution?

If there is public pressure for better facilities and no disposition on the part of the transportation company to discuss the matter with the municipal authorities, the latter must take the initiative, and this too often is in the form of attacks and proclamations. These cause the company to dig in and shoot over a few grenades of its own. The newspapers, probably uninformed on the rights of the case but unquestionably certain that an acrimonious fight is circulation-building news, play it up. Play what up? The fight, not the facts, which are difficult to arrive at and may not be good news.

40-PASSENGER TWINS —

OF CINCINNATI STREET RAILWAY CO.

Constructive procedure demands that if something has got to be done, or ought to be done, by the city authorities, this should start with an invitation to the company to state its side of the situation.

The company would do well to view this invitation as an inch and go a mile or more in presenting at once all the facts which sooner or later an investigation will elicit anyway. In many instances, the worst difficulties which the company is up against are not of the making of the present managers and owners.

This should be stated and the difficulties set forth accurately and in detail so that anybody can understand them.

Men as a general thing are inherently fair, cynics to the contrary. Most misunderstandings result from incomplete frankness. Hatreds grow on suspicions and are melted by confessions. Let the company state clearly its debts and creditors, its financial structure, its inventory, its rolling stock and how it is scheduled, expenses and revenues, and its plans, if any, for improving service. Furnish all this information not only to the municipal government, but to all the quasi-public agencies of the city as well. Let the president, or, if his personality is not adequate, some other representative of the company, go in person to the newspaper publishers, the chamber of commerce, the city club, the merchants' association, with the facts, lay them on the desk, elucidate them, and request cooperation and suggestions. If the company is prepared to make an effort to get out of its morass, and the city interests actually desire a better transportation system, this procedure is likely to succeed.

## *Mechanization Builds Permanent Efficiency*

AN enduring, though not always spectacular, service which a mayor, city manager, city engineer, and any department head can render his community is to add his mite to the basic efficiency of the municipal government.

Incoming administrations tend to sweep away the loose and superficial, leaving alone those elements of the government which rather obviously know their business and consequently hold a measure of public support.

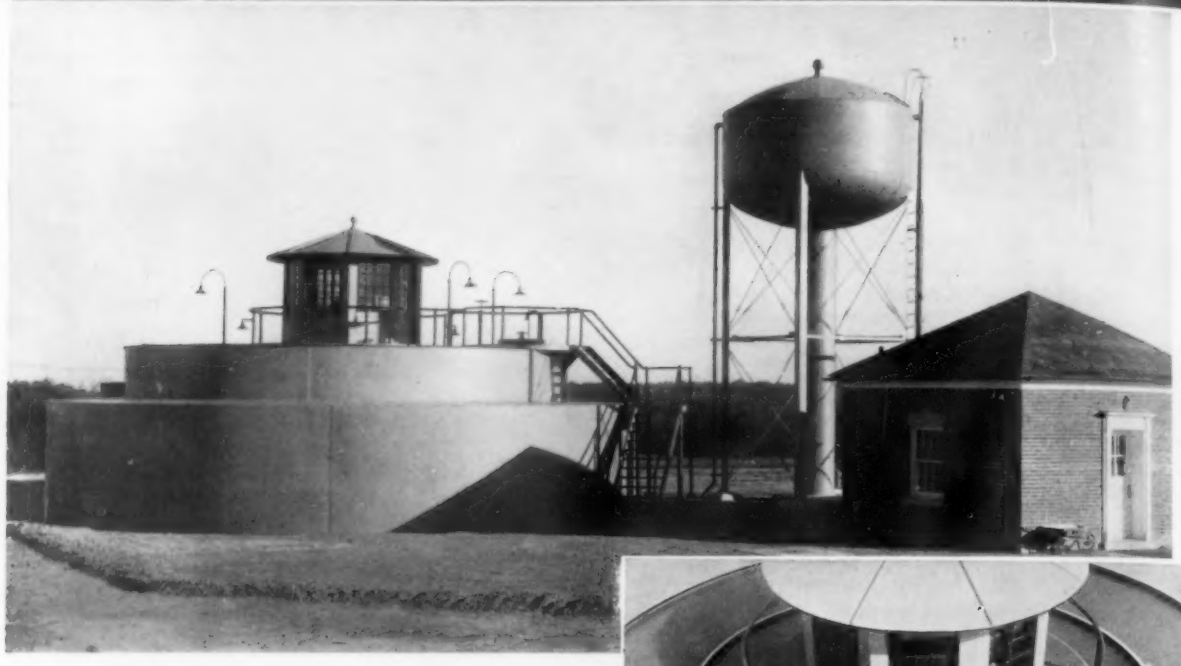
A police department equipped with radio, patrol cars, motorcycles, teletype, and a personnel capable of using them, is more likely to be left alone than one which appears to depend on expediency. The new chief, commissioner, safety director, or councilman having jurisdiction over the police department, who encourages or institutes an intelligent policy on traffic signals, markings, parking meters, adds his mite to the permanent efficiency of the department and lifts it a little farther away from future political meddling.

Mechanization is the surest road to efficiency, for machines not only increase vastly the volume and speed of routine work, but their successful operation requires the services of a trained personnel. And the top official must either understand the equipment of his department or keep his hands off those who do. Machines are a mystery and an irritation to the inefficient and lazy, and a revelation to those who like to accomplish things.

The assessor and city treasurer who jointly install addressing, billing and accounting equipment in place of the art and mystery of the pen, or who install modern machines in place of 15-year-old models, turn a white light on the financial work of the municipality. Future finance officers must live up to the improvements, or their inadequacy will become evident. An inefficient department that gets worse is far less noticeable than an efficient department which slumps. Mechanization is a forward movement.

All municipal departments are increasingly alive to these facts.

# The MORSE *ALL-STEEL* FILTER PLANT



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## Advanced Water Service On A Low-Cost Basis

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Not only is this plant notable for its economy but also it provides maximum service with ease and smoothness—it is on an advanced plane of efficiency. It is flexible in operation and application, enabling waterworks engineers to plan for capacity needed—secure in the knowledge that additional units can be added economically when required. Previous installations record that a consistently satisfactory effluent can be maintained easily. Operating rate variations are quickly accommodated. Each of the plant's rapid sand type filters may be operated independently, taken out of service or washed without disturbing other filter operations.

Pictured here is the recent Morse Filter Plant installation at Lorton, Va., serving District of Columbia Penal Institutions. It occupies an area but 50 ft. in diameter, has a capacity of 1,250,000 g.p.d. Standard designs are available ranging from 250,000 g.p.d. to 30,000,000 g.p.d.

## YOUR BULLETIN

Send for this bulletin — The Morse Filter Plant — It will assist you in obtaining quotations on units to meet your specifications.

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Philadelphia..1616 "1700" Walnut St. Bldg.
Boston.....1501 Consolidated Gas Bldg.
Birmingham.....1502 N. Fiftieth Street
Dallas.....1406 Liberty Bank Bldg.
San Francisco.....1033 Rialto Bldg.
Houston.....2919 Main Street
Tulsa.....1625 Hunt Bldg.
Los Angeles.....1403 Wm. Fox Bldg.

*Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.*

# Water-Works Operation

## *Cross-Connections and Definitions*

IN a paper presented before the Kentucky-Tennessee Section of The American Water Works Association, Alfred H. Fletcher, Sanitary Engineer, City Health Department, Memphis, Tenn., discusses the subject of cross-connections between municipal and quasi-public water supplies, concluding with an interesting summary and some helpful definitions.

The rapid decrease in typhoid deaths throughout the United States resulted in a false sense of security on the part of public health and water-works officials. Numerous outbreaks of water-borne infections have stimulated a widespread interest in cross-connections. Local surveys indicate that the problem of cross-connections is much larger than usually anticipated. Cross-connections are sometimes necessary, and with potable supplies and proper supervision are feasible and safe. Memphis, Tenn., has developed a program including the adoption of an ordinance to supervise quasi-public water supplies and cross-connections between the public supply and some 48 potable quasi-public supplies. Cross-connections between drinking or potable supplies and waste water or sewer pipes, should be searched for and not tolerated by public officials and quasi-public water-supply owners and operators. Cross-connection through plumbing fixtures is important and might be considered the second phase of a complete cross-connection and quasi-public water-supply protection program.

The term "cross-connection" is sometimes used to indicate a physical connection by means of which water may flow between a definitely non-potable source and a public or quasi-public potable supply. This definition was used in the first part of a report by Committee No. 8 of the American Water Works Association on Cross-Connections in 1932. In the Memphis program a cross-connection is defined as: "Any physical connection whereby a potable water-supply system, whether public or private, is connected with another water-supply system either inside or outside of any building or buildings, in such a manner that a flow of water into the first potable supply is possible, either through the manipulation of valves or because of ineffective check or back pressure valves, or for any other cause."

The term "quasi-public water supply" is defined as: "Any water supply used or made available by a person, firm or corporation, to their employees, tenants, members, or guests for drinking, or in connection with the manufacturing or handling of ice, foods, or drinks, such as candy, ice cream, milk, ice, bottled drinks and any other food or drink products. The source of a quasi-public water supply may be a private well or the city water supply."

## *Chlorine Protection with Gas Masks*

EACH operator in a water or sewage-treatment plant where chlorine gas or ammonia gas is used should be provided with an individual gas mask of a type approved by the United States Bureau of Mines. He should be trained by frequent drills in the use of this mask and should be required to wear it on all occasions when leakage of gas occurs. Those responsible for the purchase of gas masks must remember that the type of gas mask canister used for protection against chlorine cannot usually be used for protection against ammonia, and vice-versa. The United States Bureau of Mines has approved various types of gas canisters, each type to be used as a protection against a particular gas or related gases. Each canister is, by standard practice, painted a distinctive color to identify the services for which it is designed. The canister recommended for chlorine use is painted yellow and is filled with an absorbent mixture consisting of activated carbon and soda lime. The container used for protection against ammonia gas is painted green, and the absorbent material is silica gel. The red all-service canister may be used for protection against both gases, but for most effective protection it is advisable to provide a separate mask and canister for each gas. It is good practice to have the purchase dates plainly marked on each canister and to replace with a new canister every six months.

Gas masks should be kept in lockers outside the rooms in which the chemicals are stored, preferably in compartments having glass doors, so that the masks are visible for inspection at all times.

An operator should never go into a room in which there is leakage of gas unless he is wearing a gas mask, and unless another operator also provided with a gas mask stands at the door of the room in order to be of assistance in case of need. An important point to be borne in mind is that, while a gas mask protects the wearer against reasonable concentrations of the offending chemical, it will not protect the wearer in an atmosphere in which the oxygen content is lower than that necessary to support life.

Both chlorine and ammonia gases are highly toxic, chlorine probably being the more dangerous of the two. Both gases may be detected by their distinctive odors in concentrations far below the danger point; chlorine by its characteristic suffocating odor, and ammonia by its sharp, pungent odor. Chlorine is rapidly fatal to human beings after short exposure in concentrations of one part in one thousand of air, and ammonia in one part in two hundred. Both gases are dangerous to life even in considerably lower concentrations. The chemicals in liquid form when in contact with skin give severe burns similar to thermal burns; this being especially true of liquid ammonia.

—From a paper by H. H. GERSTEIN, Sanitary Engineer, Department of Public Works, Chicago, Ill., published in the *Journal of the American Water Works Association.*

## *A Good Reminder of Delinquent Water Bills*

VIA the *Bulletin* of the New York State Conference of Mayors we have learned of a scheme which the Village Clerk of Baldwinsville, N. Y., is using in collecting delinquent water bills. With the reminder bills sent to delinquents, who in most cases have actually forgotten to pay, he encloses the following, which has been most effective:

I am a little messenger who has a rather
delicate mission to perform. My mission is necessarily a diplomatic one,
Because I must tell people something
they do not like to hear—
And at the same time be very careful
that I do not hurt their feelings.
A short time ago a companion of mine, or
rather an advance agent of mine,
Called on you and left a little message
And my boss feels that you must have
overlooked or mislaid it
So he asked me to drop in and remind
you that you forgot to pay your water
bill of $.....

## *Water-Works Data*

IN that unusual book, "Rich Land, Poor Land," by Stuart Chase, published by McGraw-Hill Book Co., the author sums up the public water-supply industry concisely:

"There are now approximately 7,100 public water systems in the country serving 80 million people with 1 billion cubic feet a day. Twenty million of these people drink untreated water; 30 million drink water treated with chlorine; the balance use water treated with chlorine plus filtration. Los Angeles holds the long-distance record with water piped from Boulder Dam, 280 miles away; San Francisco's supply comes from the Hetch Hetchy Reservoir, 170 miles distant; New York taps the Catskill watershed, 150 miles to the north; Boston brings water 75 miles from Lake Wachusett. The average consumption for the country is 127 gallons per capita per day. Chicago is high, with 270 gallons. Lowell, Mass., is among the lowest, with 50 gallons."

---

NEW YORK STATE sanitation officials figure that it is profitable to undertake the softening of any water supply having a hardness of over 150 parts per million, since there is a saving in soap, plumbing repairs, fuel and clothing.

—*The Pioneer.*

# MAKE PAY LOADS PAY YOU MORE!

*... with the*

## RIGHT ONE OF THESE SUPER-DUMP-TRUCK GOODYEARS

THE TIRES you pick for your dump trucks affect your profits in more ways than one.

If they hold up—give you long, trouble-free service they naturally cut your tire costs. And if they combine maximum efficiency *with* long life—they cut your fuel costs and deliver a top return on your investment.

Goodyear Dump Truck Tires are specially designed to fit the type of work your dump trucks do.

There are three of them—big, tough, husky brutes, every one. All are built of patented, pre-shrunk Supertwist Cord—*blowout protection in every ply*—with specially-processed, chemically-toughened rubber in both body and tread.

The difference is in the treads. Each is for a special purpose—one for the exact conditions under which your trucks operate—one built to do your work better, longer and at lower cost than any other tire.

For all-around dump truck work there's the All-Weather Dump Truck Tire (1); where loose stones, sharp, tread-tearing rocks are encountered—the Pneumatic Lug Tire (2); and for the soft mud and sticky going—the new Sure-Grip Tire (3).

See these tires and ask your Goodyear dealer for his recommendation for your equipment.

THE GOODYEAR TIRE & RUBBER COMPANY, INC., AKRON, OHIO

**3 GREAT TIRES**

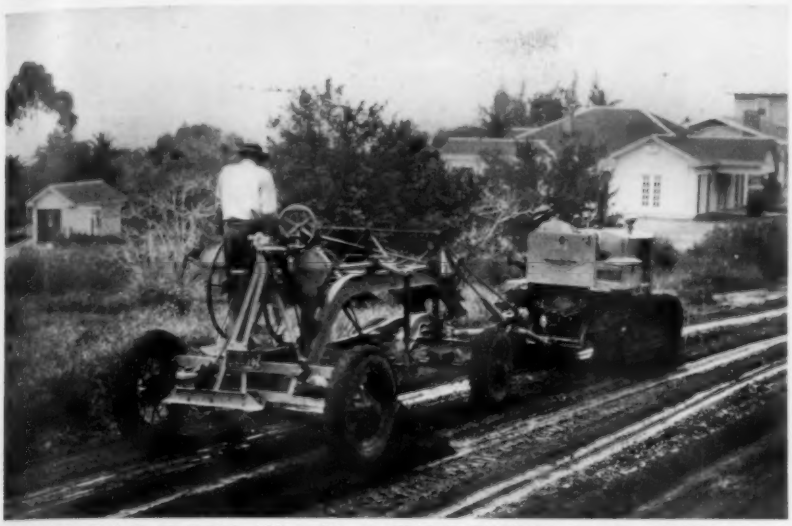
THERE'S A REAL KICK IN A GOODYEAR BATTERY

# GOODYEAR

## TIRES FOR DUMP TRUCKS

P. S.—GOODYEAR BATTERIES, RIMS, FAN BELTS AND RADIATOR HOSE WILL SAVE YOU MONEY, TOO

# Street Maintenance and Snow Removal



A FORTY DIESEL TRACTOR AND A NO. 33 GRADER WORKING ON AN OIL-MIX JOB IN VENTURA, CALIF.

## *Street Maintenance in Reading, Mass.*

THE general condition of highways in the town of Reading, Mass., in the spring of 1936 was deplorable because of the intense cold, the heavy snow, and, in the early spring, the abnormal rainfall which caused disastrous floods in surrounding communities in New England. The Board of Public Works started maintenance as early in the spring as weather conditions permitted, making the first application of Tarvia on May 5. A new Adams steel road hone was used on several streets with very satisfactory results. It is expected that in time all the streets that are honed in succeeding years will regain a proper shape, with a crowned center and low gutters, presenting a convex instead of a concave surface. Other streets where honing was inadvisable were scarified, graded and rolled. A total of 51,816 gallons of Tarvia B and Retread B, 2,740 gallons of MC-2 cutback asphalt and 5,258 gallons of 45 per cent road oil were supplied to the surfaces.

KP patching was carried on continuously during the year when weather conditions permitted. Both gravel and peastone were used as a base for the cold patch liquid. In all, 5,660 gallons of Tarvia KP and 1,640 gallons of Cold Patch were used. In addition to the cold patch mixed by Highway Department employees, 86 tons of Type E Fine Patch were purchased ready-mixed from the Barrett Company and used for patching.

—From the Annual Report, Board of Public Works, Town of Reading, Mass., 1936.

## *Vitrified Paving Brick Practice Reaffirmed*

SIMPLIFIED practice recommendation R1-36, covering vitrified paving brick, has been reaffirmed, without change, as of May 15, 1937, by the Standing Committee of the paving brick industry, in charge of the regular review of this program, according to an announcement of the Division of Simplified Practice of the National Bureau of Standards.

This recommendation, which was first proposed and developed by the industry in 1921, has, since that time, been reviewed annually and revised eight times. In its recent survey, the Committee found that 80.5 per cent of the total shipments during 1936 were in accordance with the four sizes shown in the recommendation.

In 1921, vitrified paving brick was available in 66 different sizes. The original recommendation reduced this variety to 11, and the first revision conference further reduced the number to 7 sizes. Subsequent conferences and surveys have resulted in a net reduction to 4 sizes.

Copies of this recommendation may be secured from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 5 cents each.

THESE TWO CATERPILLAR DIESEL PATROLS REMOVED ICE AND SNOW FROM THE STREETS OF GREEN BAY, WIS., AT A TEMPERATURE OF 10 BELOW ZERO

Operating 24 hours a day for two weeks at the sub-zero temperature, these machines consumed about one gallon of 7-cent fuel per hour. One machine had over 5,500 hours' operation behind it. These Auto Patrols build and maintain oil-mix and other roads during spring, summer and fall seasons

ONE OF THE FIVE CATERPILLAR AUTO PATROLS USED BY SPOKANE, WASH., IN MAINTENANCE AND SNOW-REMOVAL OPERATIONS

The fuel consumption averages 1.3 gallons per hour, and the average cost of operation, excluding operator, taxes and depreciation, is 82.5 cents per hour. The machine handles 17 miles of grading per 7-hour day

● The contractor who owns these two BARCO Portable Gasoline Hammers is saving considerable money because of the low investment and low hourly operating cost—and don't forget that those savings will soon offset the investment.

Drilling, breaking, cutting, driving or tamping—any or all in the course of a day's economical and dependable work. Here's what one company says—

*"That a self-contained machine capable of such heavy work can be produced in so compact a form is a source of amazement to us and we wish you with it the success you deserve."*

**Write us for catalog and operating data.**

BARCO MANUFACTURING CO.

1803 Winnemac Avenue Chicago, Illinois

**BARCO** *Portable* **GASOLINE HAMMER**

# Refuse Collection and Disposal

THE LATEST ADDITION TO THE FLEET COLLECTING REFUSE IN RACINE, WIS.

## *New Collection Unit Used in Racine, Wis.*

A RADICAL departure from the ordinary garbage truck has recently been placed in service by the Department of Public Works, Racine, Wis. This new unit is well equipped for the speedy removal of refuse. The Garbage-Getter body is mounted on a 151-inch Mack, Jr., wheelbase. The body, 102½ inches long, 72 inches wide, and 63¾ inches high, is constructed of plate-welded high carbon steel and is watertight. The equipment includes a power-loading bucket, hydraulically operated, into which the garbage is directly loaded at a convenient elevation for the men. This bucket then hoists the refuse up and dumps it into the body.

Operating in the vicinity of Racine and over a route which averages 50 miles per day, this truck hauls 8 cubic yards of garbage per load from the place of its collection to the disposal plant.

## *Safety at Incinerators Should Be Enforced*

THE evening papers of May 19, 1937, in New York City carried the unhappy news of the cremation of a second employee at a municipal incinerator. Such accidents are entirely unnecessary if safety belts and safety lines are provided and used.

Safety belts and lines are provided by the Department of Sanitation, New York City, and an investigation of the latest accident, in which the chain and buckle of the safety belt were found in the incinerator, indicates that the carelessness of the laborer in not properly attaching his safety belt to a ring on a cable running between the two hoppers had made it impossible to save him.

There is a strict order in New York City, as there should be everywhere, and every effort should be made to see that it is carried out, that any laborer who is working about the loading floor of an incinerator without his safety belt attached to the safety line shall be dismissed immediately.

The use of safety belts at all incinerators is advisable, but particularly at those in which only a single man is working on the charging floor. There is little hope for the life of anyone falling into the hot fires of modern high-temperature incinerators, so that, whether a man is working alone or not, he should be protected by a safety belt and a non-combustible safety line.

## *New York Builds Island with City's Refuse*

EACH year the city of New York has to pick up and dispose of approximately 25,000,000 cubic yards of refuse, which includes street sweepings, household ashes and other refuse that accumulates in a city. From a point of volume it is by far the largest job of its kind in this country and no doubt in the world.

A part of this material is disposed of by incineration, but a large part of this volume is loaded on scows and towed to a point in the East River called Rikers Island, where there are two unloading plants, each capable of lifting from scows approximately 25,000 cubic yards in 24 hours.

For a generation or more, up to January 1, 1937, the material lifted from scows at Rikers Island was loaded on old railroad type dump-cars and hauled from the unloading plants by steam locomotives to a point on the island where the cars were dumped, the average haul being about 2,500 feet. For hauls of this kind, locomotives and cars have long been out of the picture.

Realizing the necessity of modernizing the equipment being used, the Department of Sanitation completely changed this old and antiquated method of material disposal, with the result that 40 per cent more material can now be handled and at a saving in cost of approximately 45 per cent. A fleet of diesel-powered track-type tractors was substituted, each hauling two special 40-yard hydraulically operated Athey track-type dump-wagons. The average haul is approximately 1,500 feet, although occasionally it is necessary to move the material as much as 3,000 feet. In addition to the fleet of nine Caterpillar RD8 tractors for hauling, there are others equipped with hydraulic bulldozers for leveling the dump. All the tractors are equipped with hydraulic pumps that are interchangeable for bulldozer or wagon operation, so that they may be switched from one job to another quickly.

Rikers Island originally comprised about 60 acres of land above the water level. The city of New York has by planned disposal of refuse increased the size of this island to approximately 400 acres of useful land, part of which is now in use by the Department of Correction of the city of New York.

A 5-CUBIC-YARD ORANGE-PEEL BUCKET AT RIKERS ISLAND, N. Y., LOADS RUBBISH FROM BARGES TO 40-YARD ATHEY CRAWLER GARBAGE TRAILERS WHICH REPLACE OLD PORTABLE RAILROAD, SAVING $100,000 A YEAR

# Vitaguard Fire Alarm System for Volunteer Fire Departments

**STREET FIRE ALARM BOXES PROPERLY DISTRIBUTED WITH REFERENCE TO FIRE HAZARDS PROVIDE THE MOST RELIABLE AND ACCESSIBLE MEANS OF TRANSMITTING ALARMS TO THE FIRE DEPARTMENT**

**Fire Station Operating and Control Unit**

Includes recording register, code signal transmitter, battery and charging equipment, testing and protection devices.

**VITAGUARD**
**Street Signal Station**

Provides protection against loss of alarms under disordered circuit conditions.

The Vitaguard System may be extended to the protection of special fire hazards such as Institutions, Schools, Hospitals, Court Houses, Factories, and Mercantile Establishments within which automatic fire detecting features constantly guard the property.

Public Alarm Equipment automatically controlled by the fire alarm system directs the firemen to the location of fire.

Prompt Alarms Reduce the Fire Loss.

Plans and estimates furnished without cost or obligation.

***Write for 40-Page Descriptive Catalog***

# THE GAMEWELL COMPANY

**NEWTON UPPER FALLS** **MASSACHUSETTS**

# Public Safety

THE WORK OF JUNIOR PATROL AND COURTS IS SAID TO BE A FACTOR IN THE SAFETY RECORD OF HAMTRAMCK, MICH., WHERE NO SCHOOL CHILD HAS FIGURED AS A TRAFFIC FATALITY IN MORE THAN FIVE YEARS

POLICE CHIEF WILLIAM H. FUNSTON OF SCHENECTADY, N. Y., POINTING OUT HIS NEW GENERAL ELECTRIC TRANSMITTER

He says: "The men responsible for law enforcement, from city officials to patrolmen, like the two-way radio for the same reasons that the people of Schenectady like it: it places headquarters next door to the average man's home; a prowl car can both listen and speak. Police radio has become the first line of defense for cities of all types."

## *Tow-Car Racket Using Short-Wave Radio*

THE "tow-car" racket, by which wreckers, racing to the scene of an automobile accident, not only violate speed laws but victimize persons involved in accidents, is bringing action in certain cities, reports to the International Association of Chiefs of Police show.

In Providence, R. I., for instance, the Bureau of Police and Fire has received complaints from car owners involved in accidents that, when they are released from the hospital they find their automobiles in the hands of garagemen who demand exorbitant fees, even when the car has been removed without the owner's permission. The situation came to a head when police arrived at the scene of an accident to find six tow-cars blocking the highway and impeding the investigation.

A police inquiry ensued, and it was found that some garages in the city were equipped with police radio receiving sets. Tow-cars were placed near garage doors, just as fire-trucks are in fire stations, to make a quick get-away upon accident alarms.

## *New Alarm Adds Speed in Rome, N. Y.*

OUR new Gamewell fire-alarm system of six circuits replaced a 40-year-old 4-circuit system. The new work consists of complete new central headquarters switchboards housed in a new fireproof building. The old 4-circuit aerial system was rebuilt into a 6-circuit system. We placed underground all fire and police circuits in the business section. The new central switchboard equipment speeds up the system. We use the existing boxes. About 90 per cent of the new work pertained to the central headquarters equipment and building. The project was built with PWA aid, the city receiving a 45 per cent grant, and the remainder, of 55 per cent, was financed by bonds.

JOHN J. GAWKINS,
City Engineer, Rome, N. Y.

## *Safety Communications of East Orange, N. J.*

WE have a Gamewell threefold central fire-alarm office, a Graybar-Western Electric police radio system, a Crouse-Hinds and Electromatic traffic signal system, and a Gamewell police-box and recall signal system, all of which incorporate several unique departures from standard practice for greater dependability.

We are 100 per cent underground and have combined as many of these services as possible wherever practical for efficiency and neatness. This has resulted in the development of our own combination pedestal, which accommodates most of the apparatus of the above systems, thereby reducing the number of obstructions on our street corners.

W. H. JORDAN,
City Electrician, East Orange, N. J.

SOME OUTDOOR MUNICIPAL HIGHLIGHTS IN MIDDLETOWN, N. Y., POPULATION 22,000

(1) Type of street sign (Municipal Street Sign Co., Inc.); (2) glimpse of fire headquarters, which contains a modernized Gamewell alarm and this year has purchased a Type B Diaphone compressed-air horn; (3) Signal Service Corp. one-way red-red-green traffic signal, upright street lamp, one of ten new fire boxes; (4) at a police telephone box; (5) police headquarters entrance of city hall. Three Harley-Davison motorcycles (one frequently added) patrol the town. At the principal intersection, at East Main and South Streets, Britemark traffic dots of monel metal mark pedestrian lanes each way, and have for the last 6 to 9 years

# STOP THIS LOSS OF LIFE AND PROPERTY

FROM Maine to Alabama, wrecked automobiles pile up a shocking total of death and injury as well as property damage during the winter months. Ice, snow and sleet take a grim toll everywhere.

Years ago International Salt Company, Inc. recognized the problem that was facing street and highway officials due to increased motor travel in the winter. International offered the services of its Research Laboratory to work in cooperation with public officials to cut down the appalling number of winter accidents.

This study and practical experience have proved that the use of Rock Salt is the most practical, most effective and most economical way to make winter streets and highways safe. Rock Salt has been found to be the most effective chemical now used for embedment of abrasives to make non-skid surfaces on icy and snowy roads. Rock Salt melts ice more effectively—honeycombs and undercuts the ice without leaving slippery surface puddles. Traffic quickly crushes this honeycombed ice which can be easily and rapidly removed.

Tests made by the Maintenance Committee of the Highway Research Bureau are shown in a table which is part of a new book prepared by International Salt Company, Inc. The table shows that, pound for pound, Rock Salt is more effective than other chemicals at the usual winter temperatures. Write for this book, and any information you would like about the effectiveness, and economy, of using Rock Salt for making winter streets and highways safe. International Salt Company, Inc., Scranton, Pa.

## 3

**Reasons why Rock Salt is preferred for winter safety.**

**ECONOMICAL**
Costs far less than any other usable chemical.

**EFFECTIVE**
Longer-lasting embedment action prevents freezing of abrasive piles—retains melting power longer—melts more ice, pound for pound, than other usable chemicals.

**SAFE**
Used alone or with abrasives in winter for the utmost safety.

## What Practical Officials say about International Rock Salt for Ice Removal

"Manholes, car tracks, etc., make it impossible to remove all snow by ploughing. We prevent ice formation by using rock salt, and make dangerous streets and crossings safe with rock salt and cinders."
*Street Commissioner, Large Industrial City*

"I have used rock salt mostly with sand for slippery roads and around culverts for forty years, and found it very satisfactory."
*Superintendent of Highways, New England City*

## INTERNATIONAL ROCK SALT

**INTERNATIONAL SALT CO., INC.**
Dept. 9-A, Scranton, Pa.
Please send me a free copy of "Make Icy Pavements Safe with Rock Salt."

*Name*— — — — — — — — — — — — — — — —
PRINT PLAINLY
*Title*— — — — — — — — — — — — — — — —
*City*— — — — — — — — — — *State*— — — — —

# Health and Sanitation

## *Municipal Responsibility for a Clean Bill of Health*

LOSS of life, especially through some unusual means, is front-page news and immediately attracts attention. This represents a failure in the protecting forces set up by our society. The saving of life is ordinarily much less spectacular. Successful, day by day, health efforts such as the prevention of disease through an immunization campaign, the building of a hospital or a pasteurization plant, are accepted as every-day occurrences and go almost unnoticed.

Municipal corporations exist for the purpose of securing for their members things which can best be obtained through some form of organized effort. Among these the preservation of the public health is of primary importance. So well recognized is the need for organized public health effort that in practically every political subdivision some provision is made for a health department. Not only has the need been recognized, but well-worked-out plans of organization have been developed, so that the provision of this service may be undertaken with some assurance.

The purpose of health work is the saving of lives or the postponement of death. Efforts of health departments are therefore directed towards the prevention of disease and the improvement of health. Modern science has demonstrated that this may be accomplished through such activities as the protection of water supplies from contamination, the provision of proper sewage disposal, the control of infected individuals, immunization against diphtheria and smallpox, pasteurization of milk and supervision of food supplies, as well as many others.

Mortality and morbidity data are generally accepted as criteria for evaluating health services, although for some activities adherence to standards of performance commonly accepted as representing good practice must be depended upon.

—From the 1936 Annual Report of the Health Department, Palo Alto, Calif.

## *Child Health Work in 1871 and in 1937*

THE Annual Report of the Commissioner of Health for Milwaukee, Wis., in the year 1871, stated: "In this connection may be mentioned the large number of deaths of children under five years of age—978—more than one-half the grand total of 1,743 of all ages. This is a frightful mortality and there must be some reason for it—a reason founded not on the arbitrary decree of Providence, but in the defective constitution of society; or in parental violation of the conditions essential to a healthy offspring; or in an ignorant or wanton infraction of the laws of hygiene, during the period of infancy; or in a neglect of duty by the sanitary officials."

It seems almost incredible that only 55 years ago such an indictment of the proud civilization of the United States could have been possible. When we contrast this deplorable record with the achievements of present-day child-life conservation, we have indeed much of which to be proud. The Commissioner of Health in that same year, in closing his discussion of the infant mortality problem, says: "Philanthropy and political economy, as well as medical science, are interested in the problems suggested by the startling figures before us. We leave the investigation to be pursued by our successors."

Today, in Milwaukee, there exists a well-organized Bureau of Child Hygiene devoting its time and energy to the well baby. The care of the sick baby is the responsibility of the family physician, and demands individualized and personal attention. This Bureau conducts clinics in twenty-four locations to which mothers may bring their children for advice and instruction in the proper methods of rearing the child and keeping it in continued good health. In addition, extensive care is given to the pre-school child, namely, the child between the ages of one to six years, for this, too, is a hazardous period in its life.

It is true that periodic examinations do not prevent the onset of communicable disease; nevertheless, through toxoid for the prevention of diphtheria, through vaccination for the prevention of smallpox, and through streptococcic toxin for the prevention of scarlet fever, these children may be safe from the attack of three of the most fatal and hazardous of children's diseases. By these means it will readily be seen that the admonition of the early Commissioner of Health—to leave the investigation to be pursued by his successors—has been diligently and successfully carried out.

—From an article by E. V. BRUMBAUGH, M. D., Deputy Commissioner of Health, Milwaukee, Wis., in *Milwaukee Government Service*, the official publication of the Milwaukee Government Service League.

## *What Is Rat Harborage?*

RAT harborage is the term given to the enclosed spaces which afford rats hidden or partly hidden shelter, homes and suitable facilities for breeding and protection of their young until maturity. There are three general types of rat harborage, namely, structural, incidental, and temporary.

Examples of the first are double walls, space between floors and ceilings, hollow-tile partitions, enclosed stairways, hollow-boxed molding, raised platforms, and similar protected places. Those of the second include furniture and equipment, things that are incidental to the use that is made of a building or its subdivisions and are installed therein. Examples of temporary harborage are mass storage of material or merchandise, rubbish heaps, old furniture, odds and ends piled in cellars, attics, and closets, and similar accumulations which, if left undisturbed for periods of several weeks, can and will be used by rats for homes and breeding places.

Rat harborage is to be found in the great majority of the buildings of the older type, and also in some buildings of modern construction, and in a great many styles of furniture and equipment which are installed in mercantile and manufacturing establishments. Surveys which have been conducted in a number of cities and towns in different regions of the United States have revealed some interesting facts as to the existence of rat harborage of the three general types.

In the majority of instances rat harborage exists because little or no consideration has been given by the owners, the architects, the builders, or the authorities to the desirability or necessity of providing for its elimination at the time the building was designed, planned and constructed. As a result, man has provided and continues to provide rats with enclosed spaces ideally adapted for homemaking; and the same may be said of certain types of fixtures and equipment. In other words, man himself thoughtlessly establishes rat sanctuaries and gives the matter no further thought until the rodents become so plentiful that they must be exterminated or reduced in numbers.

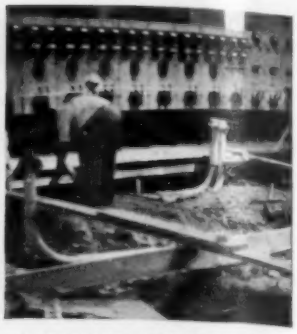
## *Household Food Handlers*

CHANGING the food handlers' ordinance in Dayton, Ohio, to include persons in domestic service is being given serious consideration. This brings up the matter of the health value of the entire ordinance, according to the Bulletin of the Division of Health, Department of Public Welfare, Dayton, Ohio. Since New York City some months ago rescinded its requirement that food handlers have a periodical physical examination, the matter of how much value in health protection such a requirement affords has been widely discussed pro and con.

Much thought has been given to this question in Dayton, even to the extent of increasing the strictness of the examination. While it is recognized that the procedure is far from perfect, Dayton believes it would be a mistake to abandon it. Most employers favor the examination, and few employees object to it. The question now is: Should domestic employees be included? As a general health protection, this is undoubtedly a step in the right direction, but since domestic employees in small homes are eliminated from the benefit of the Social Security Act and Workman's Compensation Act, there is a doubt on the part of some officials that they should invade this field with such strict requirements as periodic health examinations.

# The Beginning of Conduit Economy...

**ON STREET-LIGHTING SYSTEMS.** The advantages of a permanent, non-inductive conduit system, without the cost of a concrete envelope, because Transite's strength withstands all ordinary soil stresses and traffic loads



**INSIDE THE POWER STATION** your installation savings on Johns-Manville Transite Conduit are protected through the years, because this asbestos-cement product is resistant to corrosion, incombustible; cannot rot or decay.

**RESIDENTIAL DISTRIBUTION SYSTEMS** are another logical service where municipal lighting plants can economize by installing Transite Conduit. For, here again, its strength eliminates "concreting-in". . . reduces installation costs.

**IN ALL EXPOSED LOCATIONS**—Indoors as well as outdoors—Transite Conduit has proved the *lasting* solution to conduit troubles. Years of freedom from maintenance are assured by its resistance to corrosion, incombustibility and imperviousness to weather.

# ...and the End of Conduit Trouble!

THE STORY of Transite Conduit's ever-growing popularity on municipal distribution systems can be written in two sentences:

**Its installation effects large immediate savings. And its permanence adds the further economies of virtual freedom from maintenance throughout the years.**

How this is achieved warrants the attention of everyone interested in lowering electrical distribution costs on park . . . residential . . . fire-alarm . . . telephone . . . or series street-lighting systems.

**INSTALLATION ECONOMIES . . .** Thousands of installations all over the country have shown that Johns-Manville Transite Conduit is strong enough to be laid without a concrete envelope — and still withstand all usual stresses and traffic loads. This means big installation savings . . . particularly on one-, two- and three-duct systems . . . where the reduction in cost per duct-foot is obviously great.

**LASTING, PERFECT PERFORMANCE** An asbestos-cement product, Transite Conduit is highly resistant to soil corrosion, immune to rot or decay, incombustible and non-inductive. Hence, maintenance is cut to an absolute minimum . . . and effectiveness is assured throughout the years.

**Johns-Manville**
**TRANSITE ELECTRICAL CONDUIT**
JM

In short, this modern Johns-Manville material is the permanent, economical conduit for every municipal electrical distribution service. Full details given in our free Transite Conduit data-sheet manual. Write Johns-Manville, 22 East 40th Street, New York City.

When you write for that catalog, kindly mention THE AMERICAN CITY.

SEPTEMBER, 1937

Vol. LII, No. 9

The American City

470 Fourth Avenue
New York

35 Cents, $2 a Year

# Planned Publicity for City Water Works

## *Milwaukee Issues Pair of Pamphlets on Operation of System and Filtration Plant*

A BULLETIN describing in an easily understandable manner the operation of the water works of Milwaukee, Wis., was the result of the teaching of civics in the Milwaukee public schools, and of the large classes from several universities which visit the water-works pumping stations each year while on inspection trips. Before these pamphlets were prepared for distribution, the classes of students who visited the pumping stations made notes while being shown around by the engineer. In preparing the pamphlet, special endeavor was made to cover every question that might be asked by the students, and also many points which might be overlooked by the students when relying on making their own notes.

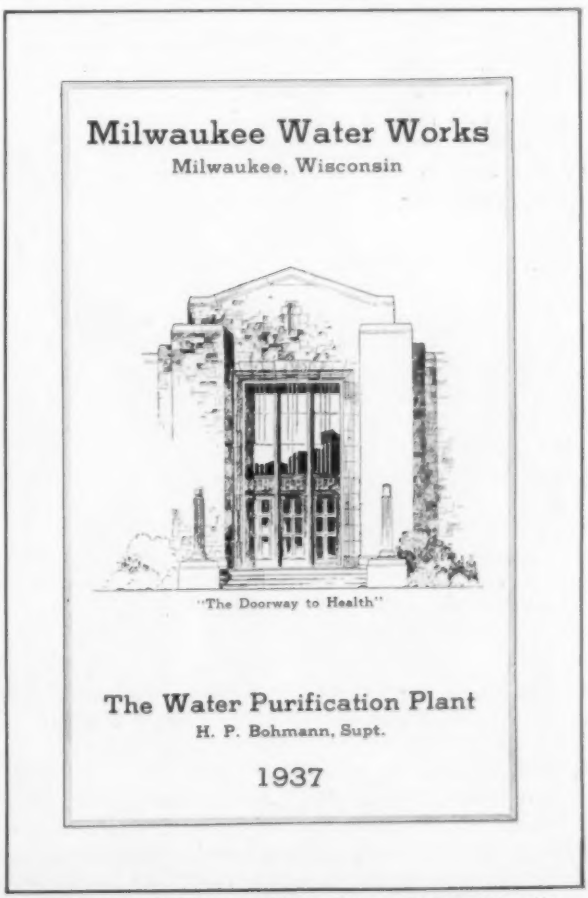
When the study of civics was first introduced in the public schools, students from both grade and high schools frequently went to the office of the Superintendent of Water Works and asked that the operation of the water works be fully explained to them. As this took up much of the Superintendent's time, the pamphlet was written in a manner that would be understandable even to pupils of grade schools. The first pamphlet was prepared about fifteen years ago. Although designed primarily for students and the general public, it contains a great deal of information that has proved of considerable interest to water-works men and engineers.

The pamphlets are supplied to all the public schools and to visitors at the pumping stations. A class of juniors in mechanical engineering visits the pumping station each year, and each student is supplied with one of these pamphlets. G. C. Wilson, Director of Steam and Gas Laboratories of the University of Wisconsin, in his letter thanking H. P. Bohmann, Superintendent of Water Works, Milwaukee, made the following statement:

"I am convinced that these students actually learn more about the problems of a pumping plant on a short visit like this than they can learn from months of textbook study. I hope you will continue to find it convenient to give our future classes the benefits of visiting your station, and, better still, having the contact with your engineers."

A pamphlet has also been prepared describing the water purification plant which is now under construction. About 2,000 copies of each pamphlet are distributed each year.

In the fifteen years during which these pamphlets have been distributed, more than 30,000 individual copies have gone into the hands of Milwaukee junior citizens, most of whom have later become voters and taxpayers and, through their contact with this well-operated municipal utility, its officials, and the wealth of information supplied them regarding its features, have understood in far greater degree the problems faced by the engineers serving the city. This may be one, if not the chief, explanation of the fine cooperation experienced by the city administration during the trying days of the flood of 1937, which wrought such havoc in the operation of the water-works system. An understanding, appreciative group of taxpayers and voters means longer tenure of office for capable, efficient engineering heads of municipal departments.




THE WATER-WORKS PAMPHLET HAS 28 PAGES AND THE PURIFICATION PLANT BOOKLET, THE COVER OF WHICH IS REPRODUCED ABOVE, HAS 14 PAGES

# Speeding Tax Work Through Punched Holes

By JOHN KESSELRING
Assessor, Louisville, Kentucky

ALL property subject to municipal taxation in the city of Louisville is assessed as of September 1 each year. The law requires that the assessor's roll be available to the public on November 15. It further provides that the assessor shall make out and authenticate the tax bills based on his assessment and list these bills with the tax receiver for collection by January 3, or as soon thereafter as practicable.

It is apparent, therefore, that this work must be done rapidly. Accuracy of course is a requisite. To obtain speed and avoid errors was the problem faced, and, contrary to the adage "Haste makes waste," it has been met and solved with success.

There are 73,495 parcels of real estate subject to assessment in Louisville, and 37,662 personal property assessments were made for the current year. The city is divided into twelve districts; twelve deputy assessors are employed, one assigned to each district. Each deputy is charged with making and recording assessments of real and personal property in his district. This work is performed under the supervision of the assessor and one chief deputy assessor.

## *Manual Methods Made Tardy Records*

A primary qualification of an assessor in the old days was good penmanship, for all the record-making and accounting and statistical work involved was formerly done by hand. Because the manual operations were slow and tedious, the information to be recorded was not available until October 1 each year, and annually there followed a six-weeks grind of writing the rolls. Night work was the order during all that period, which resulted in tired employees who could not reasonably be expected to perform with one hundred per cent efficiency. Seemingly endless checking and rechecking were necessary before the record was presented to the public.

The Board of Equalization then reviewed the assessment; changes in values made by the Board were recorded in handwriting. During the latter part of December the assessment would be completed and the tax rate fixed. Tax bills then had to be made under all the difficulties attending hand-written work. Perhaps the most formidable objection to the latter operation was the calculation of yield. This was done with the aid of sheets showing the amount of taxes produced by a round-number assessment. Odd-number assessments had to be figured by hand or with the aid of adding machines.

OFFICE OF THE ASSESSOR, LOUISVILLE

It is fair to say that this archaic system was not revolutionized over night. The equipment now in use was adopted after other methods, with respect to the various operations, were tried and found inadequate or undesirable. Typewriter equipment was used for a time to write the assessment roll and tax bills, but except for a decided improvement in appearance of the public records, most of the objection still remained.

## *Electric Accounting Method Brings Speed*

Several years ago the city of Louisville installed International electric bookkeeping and accounting machines to handle the Finance Department's accounting work. A logical step was to use these machines for tax work, since they were already available to other city departments. Experience dictated, however, that results desired could best be realized through the combined use of the Addressograph and the electric accounting machines already on hand.

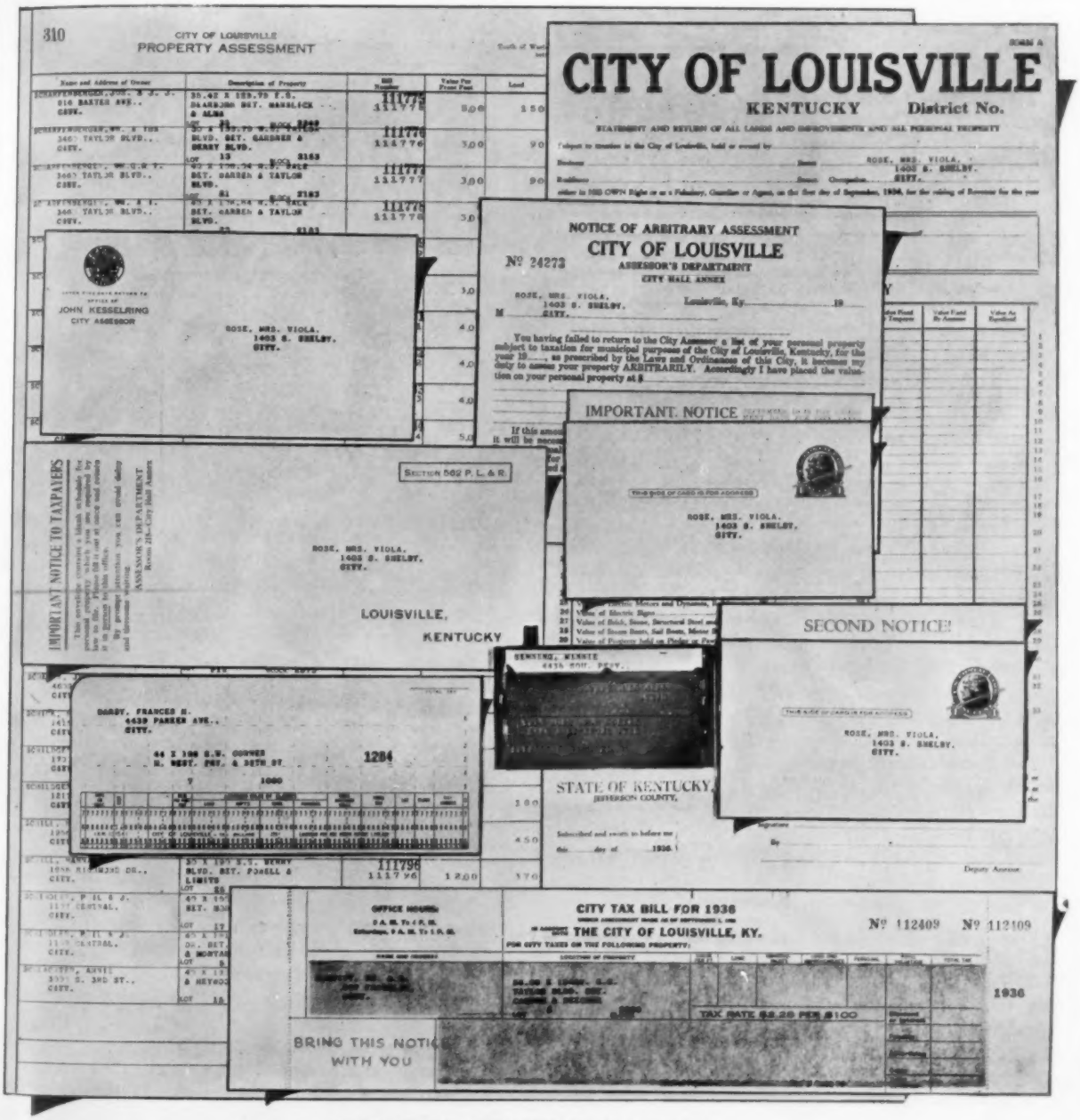
Accordingly, in 1936 the city purchased Addressograph equipment. The first step in the utilization of the combined installation was one of considerable proportion. A metal typing unit was supplied for every personal property taxpayer, and for every parcel. Each typing unit consists of four parts: (a) a metal plate on which is embossed the name and address of each taxpayer: (b) a metal plate on which is embossed the complete lot description of each piece of real property; (c) an index card printed from the above plates as a proof and to facilitate filing: (d) a metal frame holding the above three sections in one easy-to-file unit.

These typing units were embossed on keyboard Graphotype machines at a speed of from 200 to 600 complete units per 8-hour day, depending on the amount of information to be transcribed. It is to be noted that these data are more or less of a permanent nature. The real-property description is subject to infrequent change; the names and addresses, while variable, do not change with every assessment, and as they are inscribed on a separate plate, they are readily replaceable in the unit without disturbing the lot description. The majority of these plates will not be changed for years to come. An unlimited number of impressions can be made from them

with complete assurance that the data imprinted therefrom are correct in every way.

A Class 3,000 Addressograph listing machine is used to write the several forms. First and second postcard notices are addressed to the 40,000 personal-property owners, requesting such taxpayers to appear at the office and file personal schedules. These cards are addressed at the rate of 2,000 per hour. In the event that a taxpayer fails to make sworn statement as to personalty owned, it becomes the assessor's duty to assess arbitrarily, and so notify the taxpayer. The Addressograph is used to write the arbitrary notice and the envelopes in which the notice is sent. It also imprints the schedule for these arbitrary assessments. These operations are rapid; 2,000 impressions per hour can be obtained.

When the assessed values have been determined, the writing of the assessor's roll is begun. The same machine, using a two-column lister and a numbering device, is used in this operation. The top section of the plate carrying the name is imprinted in the first column. The sheet is automatically shifted, and the lower section of the plate prints the description in the second column. At the same time the numbering attachment writes a consecutive number which identifies and ties in that assessment and tax bill henceforward. Twenty-five assessments are transcribed to each page. At the end of the page the machine automatically stops. The operator then turns the sheet or inserts a new one. One thousand of these items per hour




FORMS USED BY THE ASSESSOR OF LOUISVILLE

At top left is the assessor's roll, written by addressing and accounting machines. At top right is the taxpayer's statement of real and personal property, and if he does not file statement of personal items, he receives the arbitrary-assessment notice shown below. The envelopes and postcards shown are Addressographed. Just below the tax bill (at bottom) are the tabulating card (left) and the Addressograph plate (center)

can be recorded.

At this point the International accounting machines and tabulating cards enter into the work. This equipment is used exclusively for tabulating total value of land, value of improvements, total value of land and improvements, value of personalty, total value of real and personal property. The identification numbers printed on the cards by the Addressograph are also key-punched into the respective cards, at the rate of 2,000 cards per day.

Since this key-punching operation is a manual step in the routine, a careful check is made from a proof produced from the card. A machine known as a "Verifier" aids in this checking process. As the checking proceeds, the cards are filed numerically in steel fireproof cabinets.

Next, the cards, together with the assessment-roll sheets heretofore mentioned (with the Addressograph data imprinted), are placed in the International accounting machine, which automatically prints the assessment figures on the assessment roll sheets. This machine adds horizontally and vertically, making it a simple matter to balance and verify. It stops automatically at the end of each page; 2,000 lines per hour is the average speed.

The roll is now ready for presentation to the public on or before November 15. The Board of Equalization then convenes and sits until the latter part of December, when the rate is fixed. This rate is gang-punched by a reproducing machine into every assessment card. The machine will turn out 6,000 cards per hour. After the tax rate has been punched into the assessment cards, they are run through a multiplying machine which automatically produces the yields and punches the amounts into the respective cards, multiplying at the rate of 1,200 assessments per hour with 100 per cent accuracy. At this point the card contains complete assessment information, and the making of tax bills is begun.

The tax bill blanks are printed in triplicate: an original, which is to become the taxpayers' receipt; a notice, which is mailed to the taxpayer; and an office copy, which remains in the tax receiver's office. These tax bills are first run through the Addressograph at the rate of 2,500 per hour, thence through the International accounting machine, where the figures are transcribed and totaled. The bill is then authenticated by the assessor and sent to the tax receiver for collection.

Modern methods of recording assessments and making tax bills are a satisfaction to taxpayers as well as to officials and personnel. The greater speed, accuracy and simplicity are obvious advantages. Other uses for mechanical equipment not contemplated originally present themselves. The automatic follow-up of delinquent taxpayers, facilities for study and statistical research, and adaptation to work in other city departments, are but some of the improvements available, all of which lead to more efficient and economical government.

# Eighteen Months of Intelligent Parking-Meter Operation

By C. G. BECKENBACH
Traffic Engineer of Dallas, Texas

THE advantages of parking meters, familiar now to all readers of THE AMERICAN CITY, were only dimly foreseen by us, though fervently hoped-for, when the city of Dallas installed its first thousand. This was in November, 1935, and it was then decided to under-meter rather than over-meter. This procedure left the fringe districts without the advantage of meters, and within 30 days it brought a deluge of demands for more meters.

The demands were partially met by the installation of nearly 500 additional meters. There are still petitions on file for meters, which are being held in abeyance pending complete proof that the additional meters will answer an actual public need. We have never had to remove any meters once installed.

## *Test Showed 99.6% Approval*

The carefully planned publicity and demand campaigns that were carried on just prior to and during the original installation served their purpose of allaying complaints until the advantages of the meters were proved to be real. Their advantages were tested by a visiting delegation from another Texas city, which made contacts, personally and by telephone, at random, with 1,000 Dallas citizens and merchants and found only 4 opposed to the use of parking meters.

The original 1,000 meters are manually operated. They are still in use, but are not giving the service and showing the durability which we are getting from the 500 meters of the second installation, which are known as the automatic type, in which the coin trips a lever which raises the flag and starts the clockwork. There was some difficulty in making the clocks of the manual meters start, and it was also possible to cause them to lock so that the flag would not fall. None of this trouble exists with the automatic machines. We are currently making 5.13 repairs per meter per month on the manual type, and 1.43 repairs per meter per month on the automatic meters. This includes clock trouble, coin stoppages and case trouble.

## *Analysis of Revenue*

Meter collections per month have consistently remained at $12,500 to $13,750, with the exception of January and February, when the collections fell to $10,200 and $11,300 respectively, because of bad weather and short monthly period.

On a per meter basis, the receipts are 40 cents per day in the congested area and 20 cents a day in the fringe area. The installation of 1,000 meters was in the busiest section. The second installation of 500 meters was in the fringe district. Shortly after the second installation, 500 of the downtown meters, of the first installation, were converted to the automatic type by exchange of meter works.

There are practically no alleys in downtown Dallas, and all loading must be done at the front curbs. Loading zones were placed at a minimum when meters were installed, and unused loading zones were eliminated. Increasing the size of loading zones and building driveways have cut the number of meters in actual use to 1,469, of which 75 allow 20 minutes parking, 249 allow 40 minutes parking, and 1,143 allow 60 minutes parking. The 20-minute meters are in front of the banks, and the 40-minute meters are in the districts having types of business requiring short time for transaction.

There is a very wide variation in the monthly receipts per meter over the different sections, depending on the time limits and relative location of the district. Meters placed in the busiest districts to supply adequate parking have a heavy turnover of vehicles. Meters placed in the fringe districts, principally to control the long-time parkers and to facilitate traffic movement, have a relatively light turnover.

MONTHLY RECEIPTS PER METER

| Receipts Per Month | Meters | Per Cent of Total |
|---|---|---|
| Less than $1 | 8 | 0.5 |
| $1 to $5 | 329 | 22.3 |
| $5 to $7 | 284 | 19.5 |
| $7.50 to $10 | 338 | 23.0 |
| $10 to $12.50 | 271 | 18.4 |
| $12.50 to $15 | 109 | 7.5 |
| $15 to $20 | 109 | 7.5 |
| $20 to $25 | 19 | 1.3 |

Constant check on the use of the meters is maintained. Collections are made every other day, and record is kept of the receipts from each meter. All-day car-by-car checks are made on blocks to determine the use of the meters and for the purpose of ascertaining when changes are required in the number of meters or the parking time allowed. Typical checks follow:

CHECK ON BLOCK IN FRINGE DISTRICT

*(Prevailing business: motion picture distributors)*

Observations: 7 A.M. to 6:30 P.M.
Time limit: 1 hour
Number of meters: 14
Number of loading zones: 3
Total parking hours available in meter spaces: 161
Total vehicles using meter spaces: 165
Effective use of metered spaces: 103%
Cases of double parking: 1
Passenger vehicles paying coin to use spaces: 94
Passenger vehicles using unexpired time of former parker: 21
Passenger vehicles parking with flag down and not paying coin: 33
Passenger vehicles parking on unexpired time of former parker, allowed car to remain overtime: 7
Meter users paying coin: 57%
Meter users in violation: 24%
Meter users parking free with flag up: 13%
Parking tickets issued: 3
Violators receiving tickets: 7.5%

*Commercial Vehicles:*

Using meter spaces prior to 10 A.M. without paying (legal): 8
Using loading zones prior to 10 A.M.: 7
Using loading zones after 10 A.M.: 16
Non-commercial cars using loading zones for loading (legal): 9
Total commercial stops: 40

*Violation Analysis:*

Parked on "free" time and overran available time: 7
Violations before 10 A.M. (officers go on at 9 A.M.): 16*
Violations after 10 A.M.: 11

*Use Analysis:*

Paid users averaged 37.5 minutes each, with 42% using 45 minutes or more.
Violators averaged 29.5 minutes each.
"Free time" parkers averaged 21 minutes each.

This check shows that the amount of loading space is satisfactory, and the time is satisfactory. The analysis is given to enforcement authorities.

CHECK ON BLOCK IN RETAIL SHOPPING DISTRICT

*(Small dress and hat shops prevailing)*

Time: 7 A.M. to 6:30 P.M.
Number of meters: 18
Time limit: 1 hour
Parking-hours available: 207
Vehicles parked: 134
Effective use of available space: 64%
Vehicles paying coin to park and not overstaying: 92, 68%
Vehicles paying coin to park and overstaying limit: 9, 6%
Vehicles parking on unexpired time: 8, 6%
Vehicles parking on unexpired time and overstaying available time: 3, 2%
Vehicles parking in violation, with flag down: 22, 16%

## *Where the Money Goes*

Parking meters, installed in part as a unit of the financial structure of traffic control, have been proved greatly beneficial in the field of reducing congestion and solving parking problems. This does not alter the fact that the funds derived from them were much needed for the betterment of traffic conditions and more efficient traffic-law enforcement.

In the spring of 1935 Dallas had a newly organized engineering bureau of the Police Department with aspirations to build up a special traffic-accident investigation squad second to none. Recommendations for engineering improvements, and for better traffic-law enforcement, made by Chief of Police R. L. Jones and by the Citizens' Traffic Commission, were welcomed by City Manager Hal Moseley and the Council, but finances were lacking.

The following uses have been made to date of funds derived from the meters, in addition to paying for the meters themselves:

Rebuilding the downtown traffic signal system, converting it to flexible-progressive control and changing the overhead lights to far-right-hand-corner mountings, $20,000
Building suburban traffic signals, $5,000
Increase in street-line painting crew from 3 to 6 men
Increase in personnel of the traffic division, approximately 40 men
Purchase of automotive equipment for these men
Increase of downtown parking patrol from two three-wheeled motorcycles to five, releasing the downtown foot patrolmen for other duties
Motorizing and equipping an accident investigation squad of seven men
Established Traffic Education Division and appointed full-time Educational Director to supervise a continuous program

### The Menace of Illuminated Advertising Signs on Congested Highways

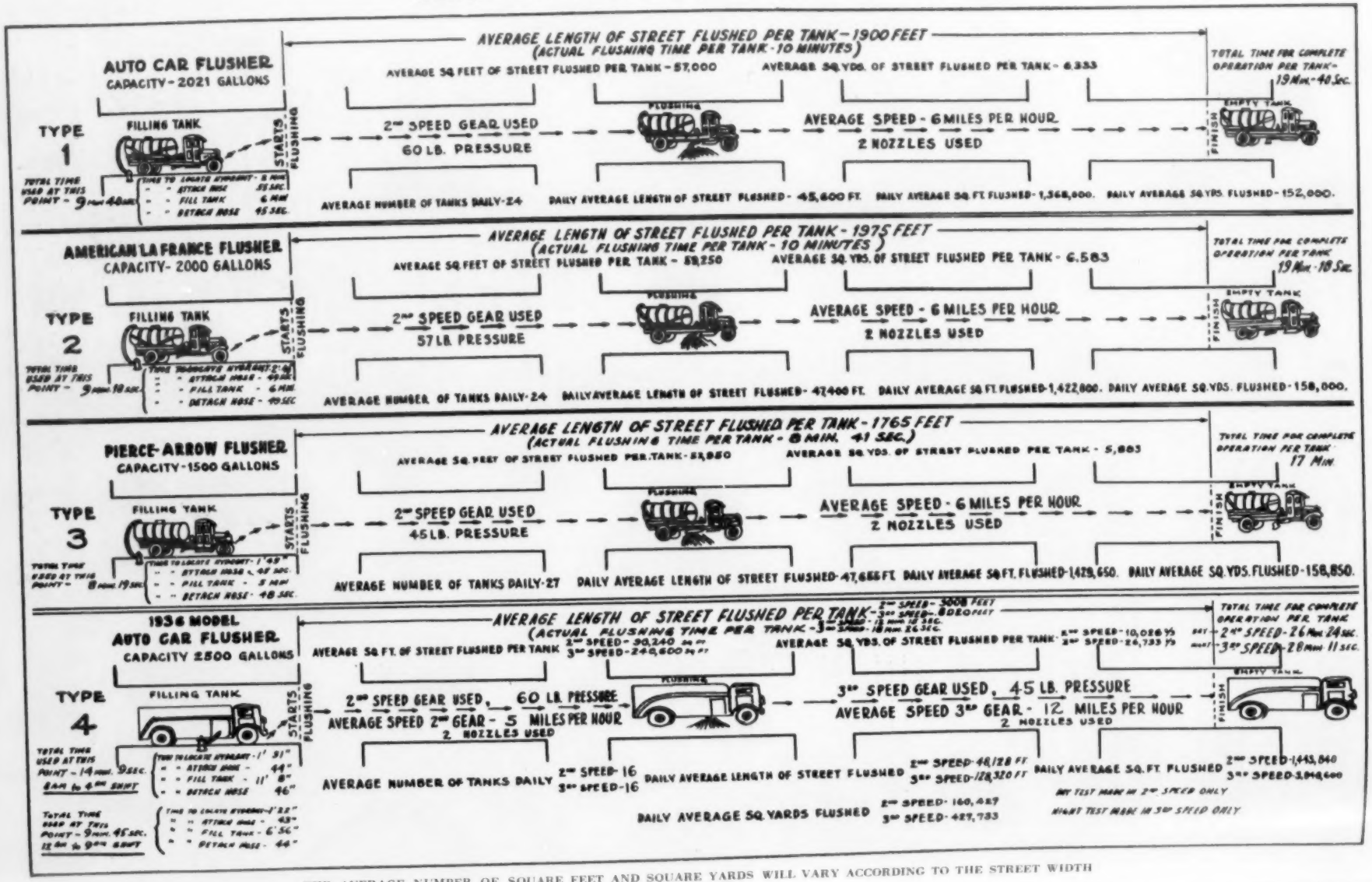
**Congested highways, particularly in the vicinity of large cities, have a new night-time menace to drivers in hundreds of thousands of illuminated advertising signs, the American Automobile Association charges. Thomas P. Henry, President of the Association, says:**

**"Thousands of tests of drivers made by the American Automobile Association with scientific equipment show conclusively that glare is one of the principal dangers in night driving. The human eye can absorb only so much light. Reaction to and recovery from glare follow well-defined lines, though varying with the individual. Aside from the distracting effect of illuminated advertisements at night, there is no doubt that they affect the efficiency of the eye in coping with conditions on the road. It is high time that business realize this and move to check this confusing mess of gaudy, glittering, flickering, shifting, illuminated signs. To make things worse, if possible, they are often placed at dangerous curves, crossroads and intersections.**

**"Throughout all the agitation for legislation for highway development and control, the American Automobile Association took the position that, generally speaking, advertising should be treated pretty much as other businesses along the highway in the public interest. However, this situation that I have discussed creates a new menace and I am calling it to the attention of our National Committee on Roadside Development and Control, which is now formulating model legislation."**

* Stops for loading or unloading only prior to 10 A.M. may be made legally without paying. Some of these "violations" are of that type.

# FLUSHING SCHEDULE, NEW YORK CITY, FOR FOUR TYPES OF FLUSHERS USED ON A STREET 30 FEET WIDE


AUTO CAR FLUSHER
CAPACITY - 2021 GALLONS
TYPE 1
FILLING TANK
STARTS FLUSHING
AVERAGE LENGTH OF STREET FLUSHED PER TANK - 1900 FEET
(ACTUAL FLUSHING TIME PER TANK - 10 MINUTES)
AVERAGE SQ FEET OF STREET FLUSHED PER TANK - 57,000
AVERAGE SQ YDS. OF STREET FLUSHED PER TANK - 6,333
TOTAL TIME FOR COMPLETE OPERATION PER TANK - 19 Min. - 48 Sec.
2nd SPEED GEAR USED
60 LB. PRESSURE
FLUSHING
AVERAGE SPEED - 6 MILES PER HOUR
2 NOZZLES USED
EMPTY TANK
FINISH
TOTAL TIME USED AT THIS POINT - 9 Min 48 Sec
TIME TO LOCATE HYDRANT - 5 MIN
" " ATTACH HOSE - 55 SEC.
" " FILL TANK - 6 MIN
" " DETACH HOSE - 45 SEC.
AVERAGE NUMBER OF TANKS DAILY - 24
DAILY AVERAGE LENGTH OF STREET FLUSHED - 45,600 FT.
DAILY AVERAGE SQ. FT. FLUSHED - 1,368,000.
DAILY AVERAGE SQ. YDS. FLUSHED - 152,000.
AMERICAN LA FRANCE FLUSHER
CAPACITY - 2000 GALLONS
TYPE 2
FILLING TANK
STARTS FLUSHING
AVERAGE LENGTH OF STREET FLUSHED PER TANK - 1975 FEET
(ACTUAL FLUSHING TIME PER TANK - 10 MINUTES)
AVERAGE SQ FEET OF STREET FLUSHED PER TANK - 58,250
AVERAGE SQ. YDS. OF STREET FLUSHED PER TANK - 6,583
TOTAL TIME FOR COMPLETE OPERATION PER TANK 19 Min - 18 Sec.
2nd SPEED GEAR USED
57 LB PRESSURE
FLUSHING
AVERAGE SPEED - 6 MILES PER HOUR
2 NOZZLES USED
EMPTY TANK
FINISH
TOTAL TIME USED AT THIS POINT - 9 Min 18 Sec
TIME TO LOCATE HYDRANT - 2 MIN
" " ATTACH HOSE - 49 SEC
" " FILL TANK - 6 MIN
" " DETACH HOSE - 49 SEC
AVERAGE NUMBER OF TANKS DAILY - 24
DAILY AVERAGE LENGTH OF STREET FLUSHED - 47,400 FT.
DAILY AVERAGE SQ FT. FLUSHED - 1,422,000.
DAILY AVERAGE SQ YDS. FLUSHED - 158,000.
PIERCE-ARROW FLUSHER
CAPACITY - 1500 GALLONS
TYPE 3
FILLING TANK
STARTS FLUSHING
AVERAGE LENGTH OF STREET FLUSHED PER TANK - 1765 FEET
(ACTUAL FLUSHING TIME PER TANK - 6 MIN. 41 SEC.)
AVERAGE SQ FEET OF STREET FLUSHED PER TANK - 53,050
AVERAGE SQ YDS. OF STREET FLUSHED PER TANK - 5,883
TOTAL TIME FOR COMPLETE OPERATION PER TANK 17 Min
2nd SPEED GEAR USED
45 LB. PRESSURE
FLUSHING
AVERAGE SPEED - 6 MILES PER HOUR
2 NOZZLES USED
EMPTY TANK
FINISH
TOTAL TIME USED AT THIS POINT - 8 Min 19 Sec
TIME TO LOCATE HYDRANT - 1' 45"
" " ATTACH HOSE - 45 SEC.
" " FILL TANK - 5 MIN
" " DETACH HOSE - 48 SEC.
AVERAGE NUMBER OF TANKS DAILY - 27
DAILY AVERAGE LENGTH OF STREET FLUSHED - 47,685 FT.
DAILY AVERAGE SQ FT. FLUSHED - 1,429,650.
DAILY AVERAGE SQ YDS. FLUSHED - 158,850.
1936 MODEL
AUTO CAR FLUSHER
CAPACITY 2500 GALLONS
TYPE 4
FILLING TANK
STARTS FLUSHING
AVERAGE LENGTH OF STREET FLUSHED PER TANK -
(ACTUAL FLUSHING TIME PER TANK -
AVERAGE SQ. FT. OF STREET FLUSHED PER TANK
2nd SPEED - 30,240 Sq Ft
3rd SPEED - 240,600 Sq Ft
AVERAGE SQ YDS. OF STREET FLUSHED PER TANK -
TOTAL TIME FOR COMPLETE OPERATION PER TANK
2nd SPEED - 26 Min 24 Sec.
3rd SPEED - 28 Min 11 Sec.
2nd SPEED GEAR USED, 60 LB. PRESSURE
AVERAGE SPEED 2nd GEAR - 5 MILES PER HOUR
2 NOZZLES USED
FLUSHING
3rd SPEED GEAR USED, 45 LB. PRESSURE
AVERAGE SPEED 3rd GEAR - 12 MILES PER HOUR
2 NOZZLES USED
EMPTY TANK
FINISH
TOTAL TIME USED AT THIS POINT - 9 Min. 9 Sec.
8 AM to 4 PM SHIFT
TIME TO LOCATE HYDRANT - 1' 51"
" " ATTACH HOSE - 44"
" " FILL TANK - 11' 8"
" " DETACH HOSE - 46"
TOTAL TIME USED AT THIS POINT - 9 Min. 45 Sec.
12 AM to 9 AM SHIFT
TIME TO LOCATE HYDRANT - 1' 32"
" " ATTACH HOSE - 43"
" " FILL TANK - 6' 56"
" " DETACH HOSE - 44"
AVERAGE NUMBER OF TANKS DAILY
2nd SPEED - 16
3rd SPEED - 16
DAILY AVERAGE LENGTH OF STREET FLUSHED
2nd SPEED - 48,128 FT
3rd SPEED - 128,320 FT
DAILY AVERAGE SQ. FT. FLUSHED
2nd SPEED - 1,443,840
3rd SPEED - 3,849,600
ANY TEST MADE IN 2nd SPEED ONLY
NIGHT TEST MADE IN 3rd SPEED ONLY
DAILY AVERAGE SQ. YARDS FLUSHED
2nd SPEED - 160,427
3rd SPEED - 427,733

THE AVERAGE NUMBER OF SQUARE FEET AND SQUARE YARDS WILL VARY ACCORDING TO THE STREET WIDTH

# Street-Flushing Studies in New York

## *Gotham's 3,500 Miles of Paved Streets Are Scrubbed by Power Flushers*

By BERT ADLER
Deputy Commissioner, Department of Sanitation, New York City

ABOUT two years ago New York City embarked on an extensive program of street flushing to insure the cleanliness of its 3,500 miles of paved streets. This program was accelerated last fall by Sanitation Commissioner William F. Carey, who believes that flushing is the most practical street-cleaning method that can be used, because high pressures can be developed by the separate power units on the flushers, and proper adjustments can be made to the nozzles. Dust and dirt which collect on the streets can then be rapidly washed over to the gutters and readily flow down to the sewer catch-basins. At present hand flushing is resorted to only in the market areas.

### *Timing the Work*

The first step in the program was to study the various types of flushers and to determine the proper pressure, speeds, number and setting of nozzles to produce the best results with each type of flusher. The results of these studies are shown in the flushing schedule reproduced on the opposite page. Special note should be made of the fact that the average number of square feet or square yards flushed varies according to the street width.

It was only after considerable study and actual time tests had been made that the schedule for the total time used by each flusher for filling was determined. In the schedule, this time is divided into four items: the time taken to locate the hydrant; the time required to attach the hose; the time required to fill the tanks; and, finally, the time required to detach the hose. The time for the complete operation, including flushing for each size of tank, is as follows: The Autocar flushers, which have a capacity of 2,021 gallons, require 19 minutes and 40 seconds for a complete cycle of operation, of which 10 minutes is the actual flushing time per tank load; the American-LaFrance flushers, which have a capacity of 2,000 gallons, require a total of 19 minutes and 18 seconds per cycle, of which 10 minutes is the actual flushing time; the Pierce Arrow flushers, with a capacity of 1,500 gallons, required 17 minutes to complete a cycle, of which 8 minutes and 41 seconds is the actual flushing time; the 1936 model Autocar flusher, with a capacity of 2,500 gallons, this being the newer type of flusher used in New York City, requires a total of 26 minutes and 24 seconds for a cycle for daytime operation in second gear, of which 12 minutes and 15 seconds is the actual time devoted to flushing; and for night operation in third speed the cycle is completed in 28 minutes and 11 seconds, of which 18 minutes and 26 seconds is the actual flushing time. Delivery of 75 additional flushers of a still later type, embodying many more improvements and illustrated below, was completed last July.

The flushers now in use in New York City are of the following makes and capacities:

| Number of Units | Type | Capacity Gallons | Tons | Year |
|---|---|---|---|---|
| 161 | Autocar | 2,000 | 7 | 1932 |
| 50 | Autocar | 2,500 | 10 | 1936 |
| 75 | Autocar | 2,600 | 10 | 1937 |
| 91 | American-LaFrance | 2,000 | 7 | 1928 |
| 2 | Walters | 1,500 | 5 | 1925 |
| 1 | Walters | 2,000 | 7½ | 1926 |
| 3 | Walters | 2,000 | 7½ | 1927 |
| 6 | Walters | 2,000 | 7½ | 1928 |
| 2 | Walters | 2,000 | 7½ | 1929 |
| 10 | White | 1,500 | 7 | 1924 |
| 5 | G. M. C. | 1,200 | 5 | 1924 |

### *Flushing Procedure*

The north-and-south avenues and the main crosstown arteries are flushed first, and this work is done between the hours of 12 midnight and 7 A. M. The purpose of this is to give the most heavily traveled streets a chance to dry before heavy traffic begins in the morning. The residential sections are flushed after the main traffic arteries have been cleaned. On warm days an attempt is made to flush the streets at least twice a day.

EDITORIAL NOTE.—THE AMERICAN CITY is indebted to Deputy Commissioner Adler for this article and also for permission to publish the flushing schedule, which has never before been released for other than official publication.

NEW YORK'S NEWEST STYLE OF FLUSHER

One of the 75 new streamlined, 2,600-gallon aluminum-painted flushers with pump in the rear and driven by special power take-off from transmission. Helical cut transmission gears on second and third speeds instead of spur gears give maximum quietness of operation, and pneumatic tires reduce wear and vibration. The engine is under the seat. Autocar chassis and de luxe cab. Tank by The Heil Co.; with three-nozzle South Bend flusher equipment made by Municipal Supply Co. By placing pump in rear, the design accomplishes a proper load distribution as well as allowing a midship transmission. All major units are mounted on rubber. Easy access to pump allows quick adjustment and repair. Rear compartment is lighted, giving proper vision for night operation. This unit, weighing 20½ tons including 10½ tons of water, is as free from noise as a passenger automobile because of the quiet engine and quiet transmission in second and third speeds and of the rubber biscuits under transmission and motor

# Reduction of Refuse by Grinding

## *Application of the Rotary Knife Hog to a New Field*

By R. E. CALLER
Mitts & Merrill, Saginaw, Mich.

DURING the past twelve to fifteen years it has been my privilege to work with groups of sanitary engineers interested in discarding the present method of feeding cold, wet rubbish and garbage, by the yard, into incinerators, with the forlorn hope of maintaining high temperatures in the furnaces. In this time several knife hogs have been put into service converting rubbish and garbage into a reasonably fine fuel. This has resulted in the discovery that the present form of incinerator furnace obviously will not permit the satisfactory burning of this material.

### *Early Experiments*

About seven years ago, the American Depuration Co., of Chicago, was organized and an experimental garbage-treatment plant was built on Torrence Avenue, Chicago. This plant was assembled with the sole idea of treating garbage in such a way as to produce a satisfactory fertilizer, and it was necessary in this process to grind the garbage to a very fine consistency. After grinding, the material was run through a continuous roll press to reduce the moisture content. The rest of the treatment was largely drying and mixing.

After considerable experimenting with other mills, this company installed a Mitts & Merrill hog for reducing the garbage, and the machine worked out very satisfactorily, for it did not depend on screens or bars for grading the material, and thus eliminated the possibility of clogging. The M & M hog grinds the ordinary run of garbage, as well as chickens, animal carcasses of all kinds, tin cans and bottles to a very fine mass. The principle of the machine is similar to that of an alligator shear such as is used in junk yards for cutting metal. Four heavy shear blades, made from special tool steel, extend across the full face of the cylinder. The blades are offset so as to give a shearing cut for their entire length, and they shear against four stationary blades located in the frame of the machine. The garbage is therefore cut and recut before being discharged.

A safety device consisting of a series of swing doors is located in the feed spout of the hog. The swing doors are held in place by inexpensive cast iron struts and, if any large pieces of metal are thrown into the hog, the swing door, at the point where the first rotary shear blade comes in contact with the metal, breaks the strut, and the door opens, allowing the metal to be discharged through the opening. The machine is quickly put into operation again by merely replacing the inexpensive safety strut.

### *Advantages of Grinders in Garbage Disposal*

In practically every proposed method of garbage disposal, a grinder is an advantage. A few of the methods now under consideration in various localities are:

1. Grinding at a central station and discharging into sewers.
2. Grinding before burning in an incinerator.
3. Grinding at a sewage-treatment plant, and digestion with sewage sludge, or burning without treatment in a suitable furnace.
4. Grinding and treating for conversion to a fertilizer.

A great deal of work is now under way in the development of this method of garbage treatment in various localities. In Flint, Mich., tests are being conducted and elaborate equipment has been set up to obtain the necessary information for designing an addition to the present sewage-treatment plant to take care of garbage, which it is proposed to grind and discharge into the regular sewer system at convenient locations in the city. The garbage will be pumped with the regular sewage to the treatment plant.

Other places where garbage is being ground for one method of disposal or another are: Villa Park, Ill.; Boston, Mass.; St. Louis, Mo.; and Indianapolis, Ind.

### *Operation and Costs*

There are two hogs now in operation in one eastern city. One is used to reduce practically all the fish waste, while the second machine is used for reducing a portion of the garbage as collected. The garbage is used in the manufacture of an organic fertilizer, and this is all passed through a rubbish and garbage hog and the material reduced to a very fine consistency.

A report on this machine in December, 1936, showed that about 300 tons of garbage was hogged per knife grind. The knives are ground after their hardened steel cutting edges have been rounded back about 1/16-inch. Most of the wear comes on the rotating knives rather than on the shear blades, for these, after about a year of operation, had not been turned and showed scarcely any wear.

Allowing $20 as the cost for grinding a set of four rotary shear knives, the cost of hogging is about 7 cents per ton reduced, which is negligible. Allowing about the same amount for the prorated cost for knife renewals when worn, gives a total mechanical cost of about 15 cents per ton. To this cost should be added the power cost, which varies, and in the larger units will equal 10 cents per ton, making the total cost 25 cents per ton.

### *Burning Ground Refuse*

Combustion tests made in New York City showed that by hogging rubbish and garbage at least twice the tonnage of these variable materials can be burned in an incinerator furnace than by the present bulk mass method of handling the material.

In private industry, it is not a new practice to hog combustible by-product rubbish such as lumber-mill waste, pulp-mill bark, etc., in the paper mills and convert this material to a valuable fuel. The wet bark from a pulp mill, at northern paper mills, in moisture content and general characteristics is much like city garbage and combustible rubbish. It is common practice to hog this material to a reasonably uniform fineness, and where it is of high moisture content to press the surplus water from the fuel by means of a continuous press, reducing the moisture content to about 60 per cent. It is then conveyed distances of 200 to 300 feet to the boiler house by means of a chain conveyor equipped with steel flights. Waste gases, from the breeching or the exit of the pre-heater, are then introduced into this closed conveyor, and the conveyor speed is timed so that the waste heat may further dry the fuel down to 20 or 25 per cent moisture. This makes a readily burnable fuel, each pound of which in its existing state makes from 5 to 6 pounds of steam.

This is just what should be done with city rubbish where there are 100 tons or more available per day. When it is considered that this waste material can be converted to efficient fuel by means of hogging, the present average cost of incineration, from $2.00 to $2.50 per ton, can be reduced to a profit of 7,000 to 8,000 pounds of steam per ton. Allowing a credit of 40 cents per 1,000 pounds of steam would provide a profit of $3.00 per ton of refuse as compared with the existing disposal costs.

It is axiomatic to say that a municipality is entitled to as much profit in the utilization of its waste materials as is a manufacturer. As a result of studies extending over a number of years, I feel that the ideal disposal methods of the future will be the disposal of sewage sludge and garbage by its conversion to fertilizer, and the hogging and incineration of combustible rubbish, converting it into a steam-producing fuel to be utilized as local conditions demand.

ACKNOWLEDGMENT.—From a paper presented before the Sanitation Group, Process Division, American Society of Mechanical Engineers.

# New Concrete Runways at Minneapolis Municipal Airport

## *Conditions for Taxying, Take-off and Landing Greatly Improved*

THE new recently completed concrete runways at the Minneapolis, Minn., Municipal Airport provide a smooth, firm surface for all-year operations. In previous years, for varying periods when the frost was coming out of the ground, the airport was not used by the airlines, the military, or in fact most of the 60-odd planes that were based there. Landings and take-offs were unsafe and taxying was next to impossible because of the soft ground.

Operations were resumed as soon as possible, but the sod was wet and soft enough to be indented by the airplane tires. Continued landings in all directions under these conditions cut up the sod, and soon the surface was rough enough to cause damage by shock to large and small planes alike.

Conditions of roughness or softness naturally slow the speed on the take-off and in effect diminish the size of the airport. They also cause damage to the airplane and discomfort to the passenger. Larger and heavier airplanes can now utilize this airport with comfort and safety.

The Minneapolis Municipal Airport is located 7½ miles southeast of the Court House, which is in the heart of the loop district. The port, which is nearly square, contains 333 acres, with the administration building and three hangars along the west edge, and five hangars along the north border. Nearly all the land is graded with a one-half per cent slope to the southeast. The soil is sandy, with about a 1-foot loam surface, and the water table is from 10 to 15 feet below the surface. These ground conditions afford an excellent base for the new concrete runways which were completed in the fall of 1936.

The three concrete runways are designed in a triangular formation: the north-south runway, 3,000 feet long; the northeast-southwest runway, also 3,000 feet long; and the northwest-southeast runway, 3,500 feet long. The latter is in the direction of the prevailing winds, and all three runways are 150 feet wide.

A U. S. Department of Commerce radio beam station is located 1½ miles southwest of the airport, and airplanes following the northern transcontinental route, as well as the Kansas City to Minneapolis route, are brought directly to this airport, which now assures them a landing or take-off under ideal conditions at all times.

### *Design of Runways*

The runway concrete is 6 inches thick and laid in 20-foot strips, with the edges thickened to 9 inches, similar to the construction used by the Minnesota State Highway Department for concrete pavements. While a 5-inch pavement is ample to carry any present-day airplane traffic, it was decided to use a 6-inch thickness so that it could withstand severe weather conditions and also carry the heavier loads that may be necessary in the future. A concrete with a 2,500-pound compressive strength per square inch at 28 days was designed, but the test cylinders

showed an average of 3,500 pounds at 28 days. No reinforcing was used except dowels between the slabs. The surface of the pavement is flat and even with the ground. The dirt which was displaced by the concrete was excavated with an elevating grader loading to trucks.

## *Construction*

A six-months project was developed, with the Minneapolis Park Board, the sponsor of the project, contributing toward the materials and furnishing nearly all the equipment. The project was approved by the WPA during the summer of 1936, and the work was completed within three months, instead of continuing for six months, because it was necessary to finish the concreting before freezing weather began.

Since this was a WPA project, as much hand labor as possible was employed. Standard concrete highway equipment was procured, including three 27-E and one 21-E concrete paver, and their skips were loaded by hand from wheelbarrows. Steel forms were used for the 20-foot strips, and the paver pulled a 20-foot template, which was set to the proper cross-section. After the concrete was poured, a 20-foot finishing machine smoothed the surface, and then two men on a double bridge followed up with an Iowa longitudinal float. Two more single bridges followed this, from which the dummy joints and expansion joints were handled as well as the final finishing. Instead of belting the surface, a sheet of burlap was pulled over the concrete, since this leaves a rougher surface than that usually required. The concrete was cured by the burlap and dirt method. As soon as the pavement surface permitted, burlap was spread over the surface, which was kept wet until the next morning; then the burlap was removed and the concrete covered with dirt, which was kept moist by sprinkling for about one week, depending upon the weather.

Local crushed, washed gravel and washed sand were used for the aggregate and were delivered by trucks. Both the sand and the gravel were tested at the plant, the sand passing a sieve analysis from ⅜-inch down to 100-mesh, and the gravel from ⅜-inch up to 2-inch. Portland cement in cloth bags was used. It was stocked along the proposed runways on planks, and the concrete pavement itself was used for storage after it had cured sufficiently.

A batch for the 27-E pavers consisted of: 470 pounds, or 5 sacks, of cement; 1,560 pounds, or 7 barrows, of sand; 2,320 pounds, or 10 barrows, of gravel; and 27½ gallons of water. The wheelbarrows were run onto a small platform aggregate scales, there being one for the sand and gravel at each paver. The batches in the 27-E pavers required 5 sacks of cement, which were dumped into the skip from a platform at the side. A total of 5½ gallons of water per sack of cement was added to the batch, with due allowance for water in the aggregate. A slump test of not more than 3 inches was required.

## *Runway Joints*

One-inch expansion joints were constructed every 60 feet transversely and 50 feet apart longitudinally. Three-quarter-inch dowels with pockets and spacer bars were placed on 2½-foot centers in the transverse joints. A ground cork joint sealed both below and above with asphalt was used.

The dummy joints, 2½ inches deep, were placed every 10 feet, both transversely and longitudinally. The adjacent slabs were keyed together by using a 2-inch strip along the steel forms.

## *Labor Organization*

In order to speed up the work as much as possible, two shifts were used, each shift working five hours a day five days a week. About 100 men were assigned to each mixer, and each shift took care of subgrading, curing, and cleaning up, as well as the operation of the mixer. A double crew was used with the wheelbarrows, so that the skip could be filled in the shortest possible time. All the men had to be trained for the work, so only one paver was started, with a large crew, in order to train the men for the next crew. When the four pavers had organized crews, the production averaged between 4,000 and 5,000 square yards per 10-hour day. All the 150,000 square yards of runway paving was laid in 50 working days, and air traffic was maintained at the airport at all times.

The whole organization of about 800 men worked under one superintendent, who had a principal assistant. Each paver had one assistant superintendent, under whom came the foremen for each crew.

The material for this article was furnished by L. D. Hammond, Director, Minneapolis Municipal Airport, Wold-Chamberlain Field, and A. E. Berthe, Park Engineer, Board of Park Commissioners, Minneapolis, Minn.

## $5.37 per Room per Month Average Rent for 17 PWA Housing Projects

RENTS set for 17 PWA slum clearance and low-rent housing projects to date average $5.37 per room per month, Howard A. Gray, Director of Housing, has reported to Public Works Administrator Harold L. Ickes.

Projects on which rents have been established are located in 14 states, ranging in type from a row-house community in Miami to a huge apartment project in Cleveland, Ohio; in size from a 100-unit project in Montgomery, Ala., to the big 574-apartment Harlem River Houses in New York City.

Rents on all projects fixed to date have conformed to the requirement that each project pay its full operating expenses and return to the Government 55 per cent of its total cost, Mr. Gray pointed out. In addition, he reported, rents are all within the reach of low-income families who previously were living under bad housing conditions.

Of the 51 housing projects undertaken by PWA in the nation's first housing program, 27 directly replace slum areas. This includes the huge Williamsburg Houses project in New York City, which removed 12 square blocks of slums in Brooklyn, and is the largest project of its kind ever undertaken in this country.

Typical dwelling rents cited by Mr. Gray in his report to Administrator Ickes were: Techwood Homes, Atlanta, Ga., $5.52 per room per month; University Homes, Atlanta, $5.11; Meeting Street Manor and Cooper River Court, Charleston, S. C., $4.93; University Terrace, Columbia, S. C., $4.73; Stanley S. Holmes Village, Atlantic City, N. J., $5.51; Lockefield Garden Apartments, Indianapolis, Ind., $4.92; Cedar Central Apartments, Cleveland, Ohio, $5.71; Outhwaite Homes, Cleveland, $4.78; Durkeeville, Jacksonville, Fla., $4.24; William B. Patterson Courts, Montgomery, Ala., $3.97; Liberty Square, Miami, $4.99; Harlem River Houses, New York, $7.10; Fairfield Court, Stamford, Conn., $5.82.

# New Municipal Building for Longview, Texas

By BILL N. TAYLOR
City Manager

CITIES of moderate size that have suddenly faced an increase of several hundred per cent in population have often found it a difficult problem to meet large increased expenditures with little immediate additional revenues available. Longview has emerged from such a condition after a five-year experience in which the city not only managed to meet heavily increased current expenses but also was able to carry on a permanent improvement program which included construction of a new municipal building and many other public projects.

Longview's population increased from slightly over 5,000 in 1931 to more than 20,000 during the five succeeding years. Because of this spectacular growth, resulting largely from the discovery and development of the East Texas oil field, more adequate quarters for the city departments were urgently needed.

The attractive municipal building, recently completed, incorporates every modern comfort and facility for municipal administration needs and purposes.

The design of the building conforms to the modified Italian type of architecture, used effectively on the campus of the University of Texas at Austin, at the Pan American Exposition in Dallas, and also in California and Florida.

The exterior of the building is of stone and brick. The base is an Arkansas limestone, and the field is Cordova Shellstone from Texas. The trim is Cordova cream from Texas. The roof is straight barrel Mission tile. The windows are of Fenestra steel. The front doors are made of satin-finished aluminum and are of the balanced type of operation. Montana cream travertine was used in the walls of the lobby, with panels of golden buff Montana cream and pilasters of Montana rose tan travertine with a base of dark cedar marble. The walls of the council chamber are covered with flexwood in a walnut finish. The floors are generally of terrazzo, but the floor of the main office is covered with inlaid rubber tile, providing greater ease for employees' feet. The floor of the council chamber is covered with pebble-weave Burgundy carpeting. The seats in the lobby are of Italian Botticino marble, and the counter top is of Italian Levanto marble. The front of the counter is of aluminum with a satin finish. The ceilings in the council room, lobby, and police court are of Acousti-Celotex.

The building is equipped with a central heating plant and a blower that carries warm air through ducts to all large spaces. Small rooms are heated by steam radiators. The building is cooled in summer by a General Electric air-conditioning system using the same blower and duct system used for heating the building.

Housed under one roof on the ground floor are the administrative, water and sewer, health and sanitary, street, engineering, police, and fire departments. This grouping of several municipal departments in one building represents a definite trend today in smaller cities. The resulting

simplification effects convenience to the public, efficiency in operation, and substantial economies.

The main entrance vestibule leads directly into the police court, the council chamber, and the lobby. Surrounding the lobby are the police court, police chief's office, principal and secondary work offices, city manager's office, and council chamber.

The main office handles all business transactions with the public, assessing and collecting taxes, and the water department. In the secondary office are the building, electrical and plumbing inspectors, files and business machines. All addressing and billing of accounts is done in this office, thus avoiding confusion in the main office and interruptions by customers.

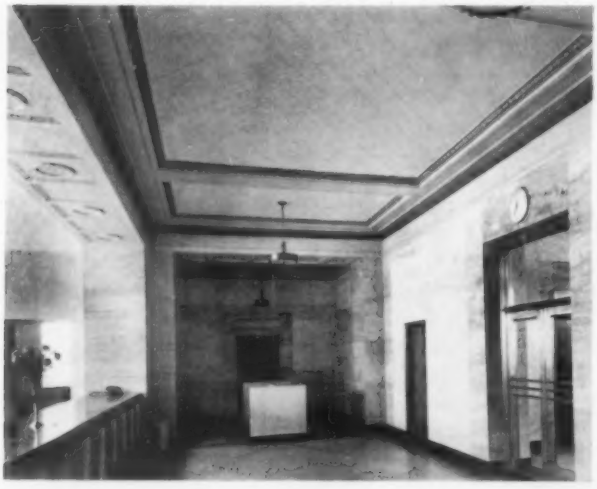
The rear portion of the building is the central fire station. The first floor houses the apparatus room, the alarm system, a billiard room, a workshop, and the chief's office. On the second floor are the chief's living quarters and firemen's dormitory. A hose tower for draining, drying and storing hose is also provided.

The basement houses the city jail, the heating and air-conditioning plants, the battery room for the fire-alarm system, the traffic-signal control system, a fireproof vault for records, and storage rooms for stationery, equipment, supplies and files.

The building is furnished throughout with Venetian blinds. The furniture in the main office is of black steel with linoleum top and chromium trimmings. Walnut furniture was used to furnish the council chamber and city manager's office. The lounges are of blue leather, and the chairs are of walnut with blue leather upholstering.

The building was completed in September, 1936, at a total cost of $105,500, including: general contract and architect's fee, $81,000; plumbing and heating, $8,950; electrical work and fixtures, $3,900; air-conditioning system, $3,350; and equipment, $8,300.

The architects were P. E. Zimmerman and W. B. Morgan, of Longview, and the general contractor was A. M. Campbell, of Tyler.



**OUTSTANDING FEATURES OF THE LONGVIEW, TEXAS, CITY HALL**

Above, left—lobby, showing customers' counter on the left and entrance vestibule on right

Above, right—main office, showing desk arrangement

Left—Council chamber

# The Cost of Fire Protection Built into Water Works

*Reduced Insurance Rates Offset Cost Added to Domestic Supply for Fire Service*

By H. R. F. HELLAND
Consulting Engineer, San Antonio, Texas

THE water works is a fundamental necessity for the modern small town, and particularly so in the Southwest, where towns are still springing up and growing, sometimes at a very rapid rate. The construction of more modern and up-to-date water and sewer systems in the smaller communities for reasons of health, sanitation, and the protection of human life and property should be encouraged.

The cost of a water works can be divided into: that part of the cost necessary for furnishing good potable water for domestic consumption; and that part necessary to furnish an adequate volume of water for fire protection.

During the past few years, I have been retained as engineer on a number of water-works installations in Texas, and several of these projects are being used as examples showing a comparison of the cost of a water works as actually constructed or contracted for, which includes some provision for fire protection, with the cost of a system strictly for domestic service, adequately serving the same territory as the system which also provides fire protection.

In making estimates of the cost of the systems for domestic water supply, an ample capacity was allowed in the source of supply, elevated tank and distribution system to assure consumers an abundant supply at all times. In general, these systems included 3- or 4-inch main supply lines, a grid of 2-inch lines, and 1-inch lines no more than one block in length to supply one to three consumers. In each case, the capacity of the elevated tank as estimated was more than sufficient for a day's supply, and the height of the tower was such that a very good pressure would be obtained. Pumping units below 75 gpm were not considered. Actually, the cost of the systems estimated in the table for a domestic supply only, could be reduced, and undoubtedly would be reduced if such a system were constructed by private capital, as is often done in smaller towns. Such systems often consist merely of a small pump, a 10,000- to 20,000-gallon tank elevated not more than 30 feet, and a distribution system of ½-inch to 1½-inch pipe. In the estimates of both types of systems in the table, complete service connections with meters and meter boxes are included.

## Cost of Fire Protection

From the table below it will be seen that for small towns of the character under consideration, the cost of fire protection is from 30 to 45 per cent of the cost of the system, plus the necessary expenditure for fire apparatus. The key rate reduction for fire insurance in any case cannot be made until the minimum requirements for a volunteer fire department and fire apparatus are met. At least 1,000 feet of double-jacketed 2½-inch fire hose and an auto truck with a 60-gallon booster tank must be provided. The cost of such equipment if purchased new will vary from $2,500 to $3,000.

## Is the Extra Cost Justified?

In Town 1, in 1934, the net fire insurance premiums were $1,083. By the installation of the water system and fire department the reduction or saving in premiums will be approximately $486, which is a 5.4 per cent return on $9,000, the difference in cost between the two types of systems, or a 4.2 per cent return on $11,500, which is the difference in cost of the two systems plus $2,500 for fire protection.

Town 2 paid net fire insurance premiums of $2,459 in 1935. By the installation of the water system and fire department the reduction or saving in premiums will be approximately $1,057.37, which is a 9.7 per cent return on $11,000, the difference in cost between the two types of systems, or a 7.8 per cent return on $13,500, the differ-

COST OF WATER SYSTEM FOR DOMESTIC SERVICE ONLY COMPARED TO ENLARGED SYSTEM INCLUDING FIRE PROTECTION: RESULTANT KEY INSURANCE RATE REDUCTIONS

| Town Number | Population of Town | Cost of System for Purely Domestic Service | Cost of System for Purely Domestic Service Plus Adequate Fire Protection | Per Cent of Total Cost Chargeable to Adequate Fire Protection | Key Insurance Rate Without Adequate Fire Protection (Approximate) | Key Insurance Rate with Adequate Fire Protection | Reduction in Key Insurance Rate Effected by Adequate Fire Protection |
|---|---|---|---|---|---|---|---|
| 1 | 480 | $18,200 | $27,200 | 33 | $1.00 | $.55 | $.45 or 45 per cent |
| 2 | 509 | 25,500 | 36,500 | 30 | .98 | .55 | $.43 or 43.87 " " |
| 3 | 892 | 23,650 | 42,300 | 44 | .98 | .47 | .51 or 52 " " |
| 4 | 900 | 25,100 | 41,280 | 39 | 1.00 | .50 | .50 or 50 " " |
| 5 | 1,500 | 39,970 | 73,326 | 45½ | 1.00 | .48 | .52 or 52 " " |

ence in cost of the two types of systems, plus $2,500 for fire apparatus.

Town 3 paid net fire insurance premiums of $4,166 in 1935. The saving effected by the installation of the water system and fire department is approximately $2,124.66, which is a return of 11.4 per cent on $18,650, the difference in cost between the two types of systems, or a return of 9.8 per cent on $21,650, the difference in cost plus $3,000 expended for fire apparatus.

No figures are available for making the calculations for Town 4, as it was only recently incorporated.

Town 5 is a comparatively new community, and the amount of premiums is not as large in proportion to its size as the other towns considered. In 1935, however, the net fire insurance premiums amounted to $2,245. The saving effected by the installation of the water system and fire department will be approximately $1,166.90, which is a 3.5 per cent return on $33,356, the difference in cost of the two types of systems, or a 3.25 per cent return on $35,856, the difference in cost of the two systems plus $2,500 for fire apparatus. As this town is growing rapidly, and better classes of business and residences are being constructed, additional insurance will undoubtedly be written and the saving in premiums materially increased.

The actual expenditures for fire apparatus in the towns discussed above was in most cases less than $2,500, since they purchased second-hand trucks and rebuilt them to their own needs.

## *Insurance a Necessity*

With the decrease in cost of fire insurance, more policies will be written, for it is often the case that with a high premium some property owners believe they cannot afford to carry such insurance, while with a lower premium they are able to do so. This, of course, is a fallacy, for the insurance is needed most when there is no means of fire protection.

"There is nothing in the present method of grading a city's defenses against fire nor of setting fire insurance rates to induce officials either to improve their fire-fighting units or to reduce fire losses. This remarkable condition exists in 47 states, the one exception being Texas, where cities and fire insurance policy holders are rewarded for improving their fire-fighting forces and for lowering losses. Strangely, this plan is almost unknown to officials outside of Texas, yet it has been in use there since 1913."*

The Texas Fire Insurance Department publishes a booklet listing the cities and towns of Texas, with fire protection and fire record data. It also publishes a key rate schedule which gives an analysis of the various factors which enter into the key rate calculation. A credit or a penalty is given for a good or a bad fire record. It is thus possible, before construction is begun on a water-works system, to go to the Texas Fire Insurance Department with the plans and secure from the Department an estimate as to the probable key rate which will go into effect if the system is constructed and other requirements, such as improvements in the fire department, are made. Further, the Department will furnish recommendations as to possible changes in the proposed construction which may have a bearing on the insurance rate.

The increased cost for fire protection might be likened to our national investment in a standing army, which must be maintained and ready to serve, but which we hope will never be called upon to act. Without protection, one fire might entail a loss of life which would more than offset the entire cost of a water-works system, but if a system is ready and at hand and prevents such loss, it has more than justified its construction and maintenance.

In addition to the actual return on investment by saving in insurance rates because of the construction of a water works which includes provision for fire protection, there are many indirect benefits. The construction of a better class of buildings and residences is encouraged. Civic pride is engendered. Real-estate values rise, the convenience of having the water available at the turn of a tap promotes the use of more water and encourages better sanitary conditions. People will bathe more often, which encourages the installation of bathtubs and other sanitary fixtures, thus improving business. The need for the construction of a sanitary sewer system is coincident with the construction of a water-works system. The sewer system leads to the increased use of water and the improvement of buildings. In medium-size and larger towns and cities the increase in domestic consumption tends to make the expenditure for fire protection more or less incidental, in that the volume of water required for domestic purposes will equal or exceed the volume which must be provided for fire protection.

## *Water Systems Not a Luxury*

There are still many towns without water which are able to afford water systems. It is important that the idea of installing such a system be sold to these communities. In these modern times a water system is not a luxury but a necessity, as citizens demand the conveniences and comforts which a water and sewer system provide. The great stumbling block is of course the means by which such construction can be financed. In Texas, and in most states, these improvements are most often financed by means of revenue bonds, the interest on which and the amortization of which are paid by the revenues from the utilities. Usually the revenue from a new system is somewhat limited, hence the first cost of the system must be kept as low as possible. This is a distinct handicap in the development of the town itself and the territory at large. Therefore, in order to secure an adequate system, additional sources of funds must be provided, and construction and material costs lowered, or an inadequate system may be built.

One method of financing that has been used is a combination of revenue bonds and general obligation bonds, the idea being that the revenue bonds finance the part of the cost attributable to furnishing a domestic supply, while the general obligation bonds finance the part of the cost occasioned by the need for fire protection. This idea has distinct merit.

In a water system the rate of material cost to labor cost is high, and anything that can be done to reduce the cost of material entering into construction, except by using inferior materials, will increase the amount of the improvement for a given sum of money. Theoretically, there is enough competition between manufacturers of water-works

* From an article, "An Answer to a Fire Chief's Prayer," by Harold A. Stone, Executive Secretary, Bureau of Government Research, New Orleans, La., in *Public Management*.

materials to insure against paying excessive prices. Freight rates also enter largely into the prices of some of these materials, notably the price of cast iron pipe. I feel that the railroads have overlooked an opportunity to increase their freight revenue, particularly in the southwest territory, by not granting a lower freight rate to municipalities for water-works and sewer materials, as is permitted by the Interstate Commerce Act.

## *Lower Costs Will Promote Construction*

Any decrease in the total cost of materials or other items entering into the construction of water works or sanitary sewers will undoubtedly tend to promote construction and increase the amount of work done in these fields. With a definite, limited amount of money available, it is only natural that communities will be quicker to construct these utilities if the systems that can be constructed with the funds at hand more nearly approach the sum required for the construction of an ideal system. Give a person more for his money, and he will be more likely to buy.

In spite of the fact that recent years have seen many water and sewer systems built in the smaller towns through Government financing and grants, there is still a great undeveloped field where these improvements are needed. Communities still lacking water and sewer utilities must be educated to the benefits to be derived; they must be awakened by the combined efforts of civic associations, state departments of health and all interested in this great industry. By making the smaller communities more attractive for homes, by providing modern conveniences, the growth of these smaller towns will promote the development of vast areas, thereby benefiting the larger communities in whose trade areas the smaller towns are situated.

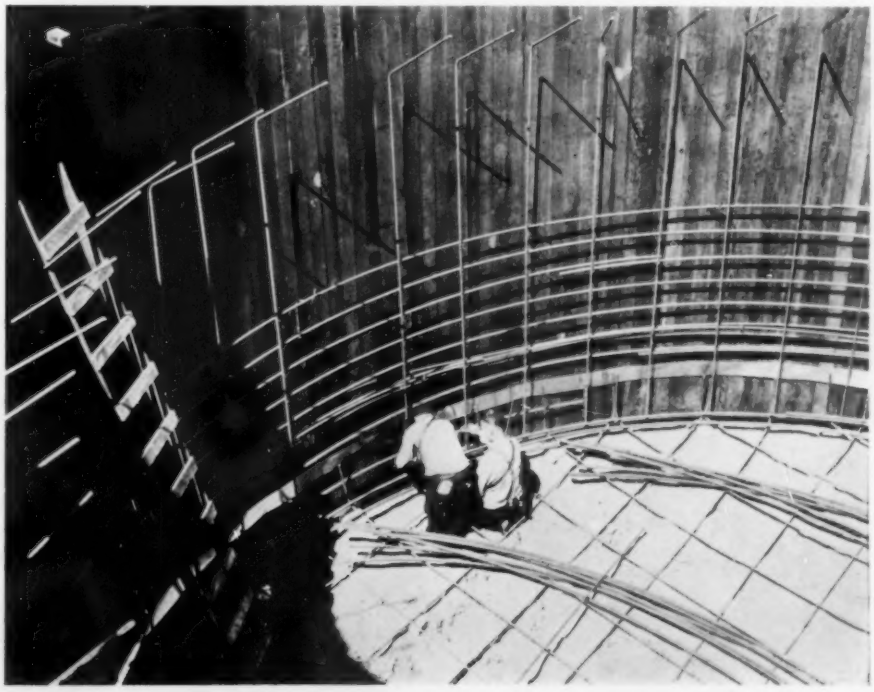
—This article is a revised text published through the courtesy of *Cast Iron Pipe News*.

# Auxiliary High-Pressure Water System for Fire Protection in San Francisco

### *PWA Financing Has Added Twenty 75,000-Gallon Cisterns Since Early 1936 to Already Large Project*

IN addition to its vast domestic and industrial water-supply projects, the city of San Francisco, Calif., has an independent fresh-water fire-protection system capable of delivering over 15,000 gallons per minute to any area of 100,000 square feet in the congested-value district. The latest addition to this fire-protection system is twenty 75,000-gallon cisterns constructed through PWA financing since the beginning of 1936.

This system was considered complete in 1913, when $5,745,000 had been expended upon it. Since then, however, a number of additions and extensions have been made, bringing the total cost to $7,800,000. When the system was first put into service, insurance rates were reduced over $1,000,000 annually. The maintenance costs,



A $2,000,000 BOND PROGRAM, INCLUDING A PWA GRANT, PERMITTED THE CONSTRUCTION OF 25 MILES OF HIGH-PRESSURE PIPE AND 20 CISTERNS WHICH HAVE RECENTLY BEEN COMPLETED BY THE CITY OF SAN FRANCISCO

labor, and material costs are approximately $45,000 annually.

This great fire protection system is composed of the following units:

Twin Peaks reservoir, capacity 10,500,000 gallons, at an elevation of 758 feet.
One steel tank with a capacity of 500,000 gallons, at an elevation of 493.5 feet.
One reinforced concrete tank with a capacity of 750,000 gallons, at an elevation of 369 feet.
The 20 new 75,000-gallon reinforced concrete cisterns.
106 miles of cast iron distribution pipes varying from 20 to 10 inches in diameter.
1,277 triple-outlet hydrants.
160 cisterns under the streets and filled with water.
Two emergency salt-water pumping stations.
Two fire-boats.
One complete fire-alarm system.

The distribution pipe system covers about 18 square miles of the 42 square miles which constitute the land area of the city. All pipes, reservoirs and cisterns are kept filled with fresh water secured by pumping from the domestic water-supply system.

The district below 150-foot elevation, known as the "Lower Zone," is supplied ordinarily from the 750,000-gallon tank at elevation of 369 feet. This gives an average pressure of 130 pounds per square inch. If a greater pressure is required, one valve can be opened at the tank, giving an increase of pressure of 54 pounds. Still higher pressure can be obtained by opening one more valve at the Ashbury Heights tank, thus putting the Twin Peaks reservoir on the system, and making the maximum pressure obtainable, 327 pounds per square inch.

The district between the 150-foot elevation and Ashbury tank is supplied ordinarily from this tank at elevation 493.5 feet, giving an average pressure of 143 pounds per square inch at the hydrant. By opening the valve at the tank, this can be increased to 258 pounds per square inch.

## *Pipes Tested*

So far as possible, the pipes have been laid in the streets in solid ground where no pipes of the domestic water system were broken in the 1906 earthquake. Pipe lines laid in filled-in ground, which may possibly break in a severe earthquake shock, can be shut off from the rest of the system by closing a gate-valve. The pipes in those districts are made with joints more flexible than the ordinary type, so as to minimize the possibility of rupture.

Before installation, each piece of pipe was tested to twice the pressure to which it would be subjected. Each pipe line, after laying, was tested to a pressure 50 per cent in excess of normal pressure. In testing under this pressure, a leakage of ⅛-gallon per foot of pipe joint per 24 hours was allowed. Ordinary leakage from the system approximates only 100,000 gallons per day.

Twin Peaks reservoir is situated on the northerly slope of Twin Peaks. The elevation of the bottom is 733 feet and of the top 760 feet. The reservoir is divided into independent halves. Almost the entire reservoir was excavated from solid rock, and it is lined with reinforced concrete 8 inches thick on the sides and 6 inches thick on the bottom.

The Ashbury Heights tank is a steel tank 55 feet in diameter and 29 feet ½-inch high, with the bottom at elevation 464.5 feet.

The Jones Street tank is of reinforced concrete, 60 feet in diameter by 35 feet 10 inches high, with bottom at elevation 334.25 feet.

## *Salt-Water Facilities*

Two salt-water pumping stations are provided to pump salt water into the mains if the fresh-water supply should be insufficient. Pumping station No. 1 is at Second and Townsend Streets, and No. 2 is in the Fort Mason Military Reservation at the foot of Van Ness Avenue. Each station has an intake tunnel in solid rock, through which salt water can be pumped from San Francisco Bay, and two independent force mains lead into the pipe network. Each station is equipped with four steam-turbine-driven pumps of a total capacity of 12,000 gallons per minute at 300 pounds pressure. Steam is maintained at each station sufficient to operate one pump at any moment. The other pumps can be put in service in about 30 minutes. Pump station No. 1 has storage for oil and water sufficient for 96 hours' service. Station No. 2 has water storage for 11 hours' and oil storage for 96 hours' operation.

Two fire-boats are used either to fight fires on ships or docks, or to pump salt water into the pipe network. The boats are of steel and are 120 feet long, with a beam of 26 feet and a draft of 11 feet. Their speed is 12 knots per hour. The boats are twin-screw, steam-driven by vertical, compound condensing engines, 13 x 28 x 20 inches. The pumps are two multi-stage turbines operated by steam turbines, with a combined capacity of 9,000 gallons per minute at 150 pounds pressure, or 4,500 gallons per minute at 300 pounds.

## *Sub-Surface Cisterns*

One hundred and six cisterns of reinforced concrete, with a capacity of 75,000 gallons each, have been constructed beneath the surface of the streets. These and 54 older cisterns of capacities ranging from 20,000 to 50,000 gallons are kept filled with fresh water and can be drawn from by pumping engines. Connections for pumping engines are also provided at swimming tanks, park lakes, and other sources, aggregating 20,000,000 storage.

## *Fire-Alarm System*

A fire-alarm system is maintained with the central station in Jefferson Square. The building is of reinforced concrete with a tile roof. It contains the various power arrangements necessary to furnish electricity for the operation of the system, which is thus made independent of any source of outside power.

The auxiliary water-supply system was designed and constructed by the City Engineer under the direction of the Department of Public Works and is operated and maintained by and under the jurisdiction of the San Francisco Fire Department.

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# No Taxes the Goal of Allegan's New Hydro

By D. E. ALCOCK

WHEN our new hydroelectric plant began to generate and sell, this year, this marked the successful termination of eleven years of battling for the plant.

In the early stages of the program the city found it necessary to deal with an unbelieving board of supervisors. It finally obtained its permit from that board, but only after acceding to their demands that a concrete and steel highway bridge be included in the plan. The city then faced a struggle with property owners who refused to sell without condemnation proceedings.

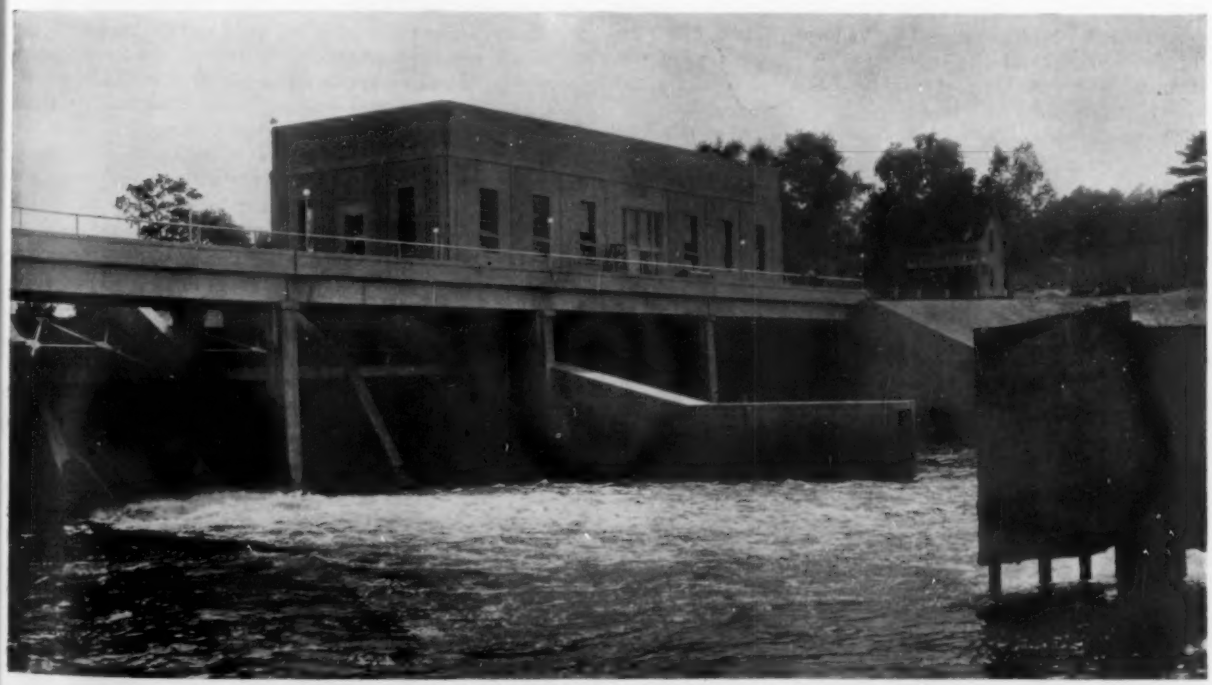
At every move the city was halted, temporarily and for months on end, by litigation brought either by the local utility company or by property owners within the corporate limits of the city. However, the city's special legal counsel, Clare E. Hoffman, then a practising attorney in the city and now congressman from the Michigan Fourth District, carried the city through all the courts to victory. The local county district court was the scene of many a legal battle. Cases were appealed to the State Supreme Court, and the city went to that judicial body no less than three times. The city was forced into the United States District Court, to the Circuit Court of Appeals at Cincinnati, and finally to the United States Supreme Court.

During all this litigation, injunctions had stopped the city from construction. Contractors were held up, and for several years the first portion of the concrete dam stood as evidence of the city's ultimate intentions. Hope had not been abandoned but was at low ebb when PWA emerged at Washington and an opportunity was given for completion of the project.

Early estimates for construction of the plant were slightly more than $500,000, but when PWA aid had been obtained, it was found that litigation, delay and resulting damage to contractors, together with the added cost of the highway bridge demanded by the Board of Supervisors, would bring total costs up to approximately $700,000. A loan of $320,000 and a grant of $90,000 were obtained. It was shortly after this fact had been made known that the private utility attempted to gain a decision from the United States Supreme Court and, failing this, announced that it was finished with litigation.

Land was flooded for the first time in early August. The first generator, a 565-kva General Electric, went on the line August 10. The second generator, a 1,125-kva, same make, went on the line August 18. These two units can supply 7,000,000 kwh annually. Peak load is 700 kw, and a 24-hour production chart shows a maximum of 9,000 kwh. A third generating unit, to furnish about 1,400 kw, will be purchased when the power demand requires.

Within three months from date of energizing the distribution system, the city installed 800 meters, all of which



**NEW MUNICIPAL HYDRO AT ALLEGAN ON THE KALAMAZOO RIVER, MICHIGAN**

Plant placed in operation this year. A third unit of about 1,400-kw capacity will be added to the present 565-kva and 1,125-kva G. E. prime movers

are Westinghouse socket-type. The power meters also are set in the new circuit-closing-device sockets. Of the 800 meters, there are more than 120 in the commercial district and some 30 industrial customers. There are now 1,275 meters for our population of 4,000, and the city now has more than 1,000 of these.

Water turbines were purchased from James Leffel & Co.; governors from Woodward; generators, switches and cubicles from Westinghouse. Two substations are in use: one steps up the current from 4,800 volts at the plant to 24,000 volts for the transmission line to the city; the second substation steps the current down to 2,400 volts, used on the primaries within the corporate limits. Line Material transformers are used exclusively in the new system.

The dam and power house are located on the Kalamazoo River, 7 miles west of the city. The lake created by the flooding of 1,800 acres of land extends to within the city limits. The widest area of the water is 1¾ miles, and in front of the gates to the power house a depth of 20 feet has been established.

To the rear of the structure is a new concrete bridge, lighted by the plant each night. The power house of steel, brick and tile, with wood roof and concrete floor, is electrically heated and contains a 20-ton crane. The equipment is practically automatic, requiring little operating attention.

## *4 Cents Per Kwh*

The rates are the lowest in the history of this community. Domestic lighting costs 4 cents per kwh for the first 50 kwh, 2 cents for the next 150, and 1½ cents for all above 200.

The plant is expected to pay for itself, without aid of taxpayers, after the first few years of operation. Not only has it forced down electric rates in this area, but it has been the indirect result of much rural line construction in this county, thus benefiting farmers of the section. Its cheap primary power rates, $24 per kva per year for the first 100 of maximum demand, $21.60 per kva for the next 100, plus an energy charge of 1 cent per kwh for the first 200, and 0.8-cent per kwh for all in excess, are expected to attract industry to Allegan.

## *No Taxes the Goal*

The city's goal is—eventually to support itself from the profits of its business, and that this is not too idealistic is indicated by the support being given the plant by those who purchase energy.

The consulting engineers were Ayres, Lewis, Norris and May, of Ann Arbor, Mich., retained by the city since the beginning of the struggle, eleven years ago. Only two contracts are uncompleted—meter installation and log-moving from the flooded area.

# New England's Preliminary Regional Plan

THE map reproduced on the front cover of this issue is an adaptation in three colors of a five-color, 22 x 30-inch map released last month by Victor M. Cutter, Chairman of the New England Regional Planning Commission, of Boston. Planning for the people of New England by the people of New England is demonstrated in this Preliminary New England Regional Plan, the first official project of this kind for a group of states. It includes plans for New England highways, airways, flood-control reservoirs and public reservations. The map serves as a basic picture which will be continuously developed over a period of years and will cover not only the four important classifications of public works but other physical developments as conditions in the future may require.

The New England Regional Planning Commission is directly responsible for the preparation and release of the Plan, but in three years during which the work has been in progress aid and criticism have been sought from and given by Federal, state and local planning agencies and their consultants, numerous private organizations, and members of the Commission's Advisory Committee, which comprises more than a thousand professional and lay citizens throughout New England. The Plan does not interfere with the policies or programs of any planning agencies, but rather provides the common medium whereby plans of the towns, cities, counties and states of the region can be adjusted one to another in the light of mutual intelligence for the common good. In the development of this Plan for the physical needs of New England, wide use has been made of data of social and economic significance.

Mr. Cutter explains that a few discrepancies, which can be cleared up only after further research and further development of state plans, are intentionally shown on the New England Plan, because of their value in indicating the interdependence of all planned developments in the region, and the importance of a comprehensive approach to regional planning.

Among the significant features of the Plan are: a regional highway system including a Coastal Limited Way from New York, an inland parkway, and a region-wide system of through ways. Proposed additional airways are graphically presented, and those districts are outlined within which state planning boards and other state agencies recommend the acquisition of lands for conservation and recreation purposes. There are 138 possible future storage reservoir sites located on the Plan.

The future of New England depends on the readiness of the six states of the region to continue to work together on problems of mutual interest. The coordination of the highway system and the cooperative building of practical and efficient through ways are vital to the industry, trade and recreation of the region. The extension and unification of the systems of parks and reservations is of paramount importance in maintaining New England's preeminence as a recreational paradise. The evolution of an orderly development of airways and ground facilities to provide for increasing air travel presents to New Englanders a challenge to save, through planning, many millions of dollars of public funds. The interrelation of the problems of flood control, water resources, pollution, and their effects on highway and airway location, all present a challenge to those who, by continual adjustment and development, will make the Plan a living instrument of interstate cooperation.

# Water for Industrial Purposes

## Part III

### *The Requirements of Different Industries Vary Greatly*

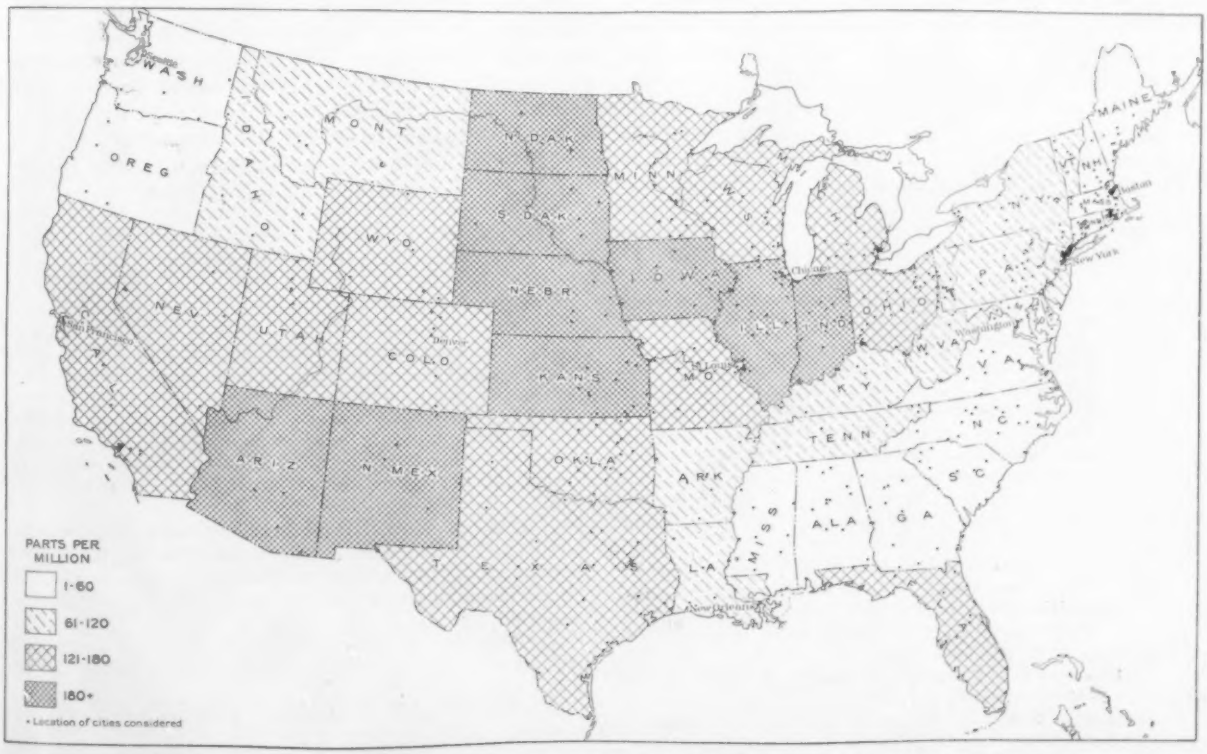
By W. D. COLLINS
United States Geological Survey

## *Available Knowledge of Water Quality*

It often is difficult and sometimes is practically impossible to learn the industrial quality of the water continuously available at some particular place in the United States. One of the most widely distributed and copied illustrations from publications of the United States Geological Survey relating to water quality is the hardness map from Water-Supply Paper 658, "The Industrial Utility of Public Water Supplies in the United States, 1932," reproduced here. Shadings on the map show into which range of hardness each state falls on the basis of the weighted average hardness of the larger public water supplies of the state. The dividing points for the ranges of hardness are 60, 120, and 180 parts per million of hardness. The shortcomings of the map are pointed out in some detail in the text accompanying the illustration in the report. Some readers have, however, neglected to note the explanation and have been disappointed to find the hardness of the water at some point decidedly different from the hardness suggested by the shading on the map.

It should be obvious that the map is not reliable for detailed information. The hardness of the natural water supplies does not change abruptly at a state line. Most of the states have some public water supplies whose hardness falls outside the range indicated by the shading for the state. In some states there are more supplies with hardness outside the range indicated than there are within the range. The weighted average hardness of 148 parts per million for the state of Florida is based on results for 14 places, which include Pensacola with hardness of 7 and St. Augustine with hardness of 520. The 16 places in Oklahoma used in the preparation of the map range in hardness from 21 for Seminole to 626 for Chickasha, with a weighted average of 156 for the state. The detailed analyses in Water-Supply Paper 658 are a much safer guide than the shadings on the hardness map, but even the detailed analyses may not be wholly adequate.

Most river waters vary in composition from time to time.




WEIGHTED AVERAGE HARDNESS, BY STATES, OF WATER FURNISHED IN 1932 BY PUBLIC SUPPLY SYSTEMS IN OVER 600 CITIES IN THE UNITED STATES
Plate 1 from Water-Supply Paper 658 of the U. S. Geological Survey

In general, the concentration of the dissolved mineral matter in a stream is least at times of high flow and greatest at times of low flow. The average hardness of the Missouri River water at Omaha, Nebr., for the month of July, 1931, was 159 parts per million; the average for January was 340 parts. Other rivers show similar changes. Public water supplies from streams will therefore vary in composition from time to time, and to really know the composition of such a supply many analyses must be available.

Some cities are supplied from two sources which furnish different proportions of the total supply at different times. Hagerstown, Md., is supplied in part by mountain streams impounded in collecting reservoirs. The water has an average hardness of about 26 parts per million. The remainder of the supply is filtered Potomac River water, which in 1931 ranged in hardness from 45 to 131 parts per million. It is easy to be misled about the probable year-round quality of water available for an industrial user in Hagerstown.

Some cities obtain water from wells or groups of wells that differ from one another in hardness, although each source may be constant in composition. In Houston, Texas, five different wells or groups of wells in use in 1932 had hardnesses of 4, 79, 97, 116, and 182 parts per million.

The facts cited above indicate some of the difficulties in the way of learning the exact composition of water supplies in some cities, even if the available analyses represent accurately the composition of the samples examined.

Although many analytical laboratories throughout the country regularly make accurate analyses of the mineral content of water samples, an astonishing number of obviously incorrect analyses come to hand in the course of a year. In the preparation of Water-Supply Paper 658, use was made of 468 analyses made in state health or other laboratories, in water-works laboratories, and in commercial laboratories, and 77 analyses made for other Geological Survey reports were used, but it still was necessary to make 357 new analyses. Analyses submitted by officials for many of the sources were so obviously inaccurate or appeared so questionable that it was not felt safe to use them, and therefore fresh samples were obtained and analyzed.

Methods of checking and evaluating analyses are described in detail in Geological Survey Water-Supply Paper 596-H, but beyond the checks indicated in that report it is frequently possible for one who has made and examined many analyses to tell at a glance that an analysis is probably in error in one or more respects. This is easier to do if the source of the sample is known.

In order to be able to give reliable information about the industrial quality of a water supply, it is necessary to have full information about the source or sources and the treatment of the water, and also to have accurate analyses of a sufficient number of samples.

Some cities are supplied from single sources that do not change in composition. These sources include large lakes or impounding reservoirs and many single wells. For such sources a single reliable analysis serves to show the composition of the water furnished at any time at any place in the city.

For places served from several sources it is necessary to have analyses for each source and to know how much water is used from each source. If a source of supply is a river, it is generally necessary to take samples every day for at least a year. In some water-works laboratories, analyses are made of monthly composites of daily samples, but by taking so long a period for the composite samples natural changes in composition are partly hidden. Composites of ten daily samples show much greater variations than the monthly composites. Experience has shown that the ten-day composite is the more advantageous. The added information given by analyses of composites covering shorter periods does not justify the added cost.

Comprehensive studies of the chemical composition of surface and ground waters have been made by the United States Geological Survey in cooperation with many state and municipal agencies. Generally, the cost of the work has been divided about equally between the cooperating parties. The Federal contribution cannot be more than half of the total cost. The results of these studies have satisfied immediate needs for the information and have also been available when needs arose that were not anticipated at the time the work was planned.

# Attracting Attention to Local Government Services

FEW people are overtly aware of the variety of governmental services which are consumed by them each day as vitally important factors in their own well-being. To make the general community conscious of its debt to the local government, the National Association of Local Government Officers in Great Britain organized a "Coronation Essay Competition," open to every citizen, for the best twelve suggestions for government publicity. The following suggestions were made by Norman H. Rogers, winner of the contest:

1. That a National Council of Civics be formed for the purpose of making known to the community the debt in public well-being which it owes to local government.
2. That a national exhibition of local government be organized; or, alternatively, that a permanent exhibition of local government activity be created at, say, some national museum.
3. That a director of civics be appointed in the areas covered by individual local authorities.
4. That an interesting press campaign (national and/or local) be conducted during the Coronation Year.
5. That "Civic Weeks" be held during which attention would be focused on the government.
6. That, with the cooperation of the necessary authorities, elementary and secondary schools be used as media through which to approach the junior community.
7. That associations of electors (voters) such as ratepayers' (taxpayers') associations be recommended to include in their 1937 program a consideration of existing services of local government.
8. That local authorities should make greater use of their rate demand notes (tax bills, in plain American), and issue with them interesting leaflets or circulars for the purpose of stimulating the interest of the community in their debt in public well-being.
9. That the universities be invited to cooperate in "making known" to the community by introducing the subject of local government or civics into their extension lecture courses.
10. That a film on the ramifications of local government be produced.
11. That the numerous conferences of various associations be used as media for stimulating the "making known" of the debt.
12. That the radio be used as a publicity and educational medium.

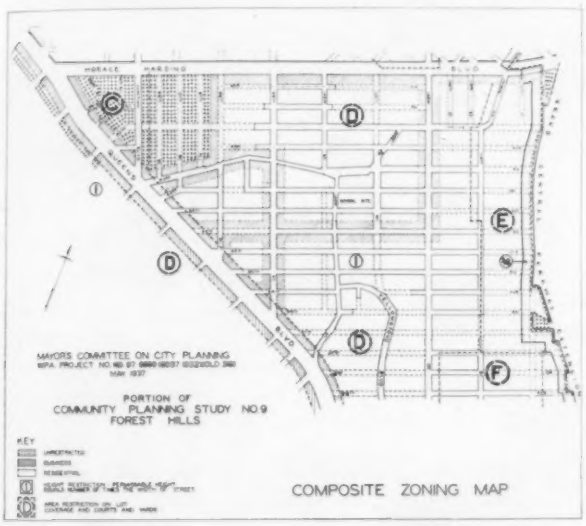
Mr. Rogers' essay is published in full in the July, 1937, issue of *Local Government Service*, by the National Association of Local Government Officers, 24 Abingdon Street, Westminster, S. W. 1, London, England.

# Neighborhood Planning Committee Suggests Novel Real-Estate Development

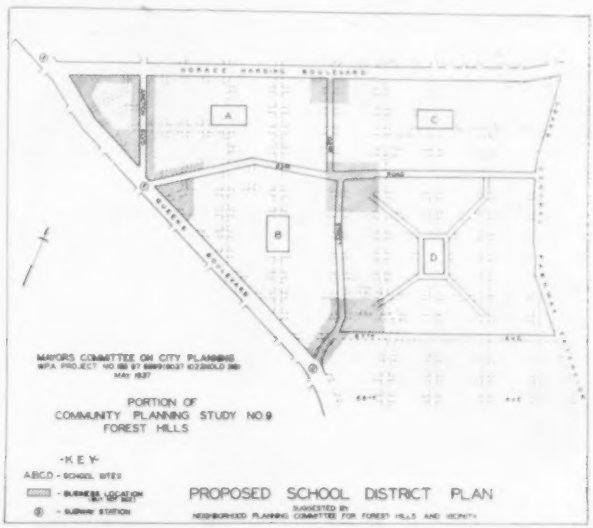
By WILLIAM HARTWELL LUDLOW

A PROPOSAL to convert into well-planned neighborhoods an area apparently destined to be another of New York's dreary apartment districts is made in a report recently issued by the Neighborhood Planning Committee for Forest Hills and Vicinity. Lying north of beautiful Forest Hills between the recently opened Independent Subway along Queens Boulevard and the site of the 1939 World's Fair, eventually to become one of New York's largest and finest parks, the tract under consideration contains about 350 acres, largely undeveloped. Five-cent rapid transit to Manhattan, combined with the attractions of a 1,200-acre recreational area and permanent breathing space, have excited to rosy hopes property owners who have long paid taxes on vacant, non-income-producing land. Already the owner of the largest single tract in the area has applied for permits to build 163 6-story, 36-family apartment houses covering from 66 to 75 per cent of their lots. The rest of the area, held in a multitude of ownerships, seems destined for unharmonious development with single-family houses, rows of one-story flats, and scattered groups of two- to six-story apartments.

Naturally concerned over the prospect of a depressing apartment district like so many in the Bronx and Manhattan, on their northern border, citizens of Forest Hills




COMPOSITE ZONING MAP




PROPOSED SCHOOL DISTRICT PLAN

## COMPARATIVE ADVANTAGES OF THE PROPOSED SCHOOL DISTRICT PLAN

| *Present Conditions* | *Proposed Plan* |
|---|---|
| **STREET SYSTEM** | |
| Fast through-traffic is encouraged on 8 north and south thoroughfares and 12 cross streets, creating noise and endangering lives of adults as well as children in residential neighborhoods. | Through traffic is concentrated on four widened streets. Other streets will carry only local traffic. |
| Streets do not focus on subway stations. | Important streets lead to subway stations. Proposed diagonal streets shorten distances to subway stations. |
| **NEIGHBORHOOD AREAS** | |
| Business streets cut area into residential districts of irregular sizes and shapes. | Through streets cut area into four residential districts of approximately the same size, each large enough to require a school. |
| **SCHOOL SITES** | |
| One site, inadequate to meet future needs, is located close to a business street. | Adequate school sites are provided in the center of each school district so that children going to school will not have to cross traffic streets. |
| **BUSINESS ZONES** | |
| Elongated ribbons exert the maximum depressing effect on adjoining residential areas and provide space for 120 more stores than can be supported. | Compact shopping centers are located near subway stations and at important street intersections. Business area is limited to the amount that will actually be needed. |
| **RESIDENTIAL ZONES** | |
| Six-story apartments are allowed. This type of structure will probably be built along the park frontage, cutting off view of the park from buildings not directly fronting on it. | Proposed neighborhood developments would contain a few high, tower-like apartment structures widely spaced among low walk-up apartments, affording the widest enjoyment of park views. |
| If the whole area were uniformly developed with six-story apartments of maximum coverage, the school population would probably badly overcrowd school facilities. | Zoning would limit population density, so that the schools would not become overcrowded. Complete development of a whole school district by one corporation would permanently provide an adequate school population. |
| **INDUSTRIAL ZONE** | |
| Any sort of industry may locate in the unrestricted area tending to blight adjacent districts. Good residential developments in, or in the vicinity of, industrial zones is discouraged. | Only light industries and commercial uses such as garages, gas stations and warehouses would be allowed in the area at the junction of Horace Harding Boulevard and Queens Boulevard. |

# DO AS RAPID CITY DOES . . .

# FLUSH YOUR STREETS SPOTLESSLY CLEAN!

*Visitors to Rapid City, gateway to the famous "Black Hills" of South Dakota, are impressed by its clean, sanitary streets. No wonder! Rapid City uses the latest in modern Street Flushers. City Manager Holm explains to Mayor DeKerchove, Water Commissioner Collins and Studebaker dealer Poppingo how the Etnyre Flusher "washes all the dirt away" . . . cleans under parked cars and flushes entire street width in one operation.*

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Every city, large or small, can have clean, sanitary streets, like Rapid City enjoys, by using modern flushers. Street-cleaning costs are less. Streets are "washed" . . . not merely "dusted." Bacteria count in street-dirt is reduced 65% by the flushing method. Flushers remove all street-dirt, from entire street width, washing streets spotlessly clean with "nature's greatest cleanser" . . . WATER.

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One big advantage of flushing over any other street-cleaning method is that flushers will wash UNDER "parked cars," thus cleaning entire street width. This permits complete street-cleaning in daytime . . . when it is most needed.

### MOUNT ON ANY TRUCK OR TRAILER-CHASSIS

Illustrations show Etnyre Flushers mounted on Studebaker Truck, in Rapid City, and in City of Johnstown, N. Y., mounted on White Truck. Etnyre Flushers have been mounted on every known make of truck or trailer . . . and are in use in many cities, large and small, throughout U. S. A. and in many foreign countries. Solve your street cleaning problem with an Etnyre Sanitary Flusher . . . now.

# ETNYRE

## SANITARY STREET FLUSHERS

have formed a Neighborhood Planning Committee under the Chairmanship of Clarence Arthur Perry, to study methods of meeting the threatening situation. With the cooperation of the Mayor's Committee on City Planning and a staff furnished by the Works Progress Administration, a report has been prepared containing significant, novel proposals for development of the area in neighborhood units.

As shown on the accompanying maps, the stereotyped street system, poor zoning and inadequate school and playground facilities now provided for the area are of the same unimaginative type that are found in the slums and near-slums of Manhattan, the Bronx and Brooklyn. Fortunately, however, many of the streets have not yet been graded or paved, and few lots are built upon. Consequently, the re-design of the area in accordance with the best principles of modern community planning is still practicable.

Based on the neighborhood unit principle, the proposed changes revolve around the creation of four school districts, each as self-contained as possible, with school, playfield and social facilities near the center, and stores and commercial services on the periphery, fronting on bounding traffic streets. Many studies have shown that in such neighborhoods a stable, attractive environment tends to develop, and full and healthy social and community life is stimulated.

The modifications of the street system, zoning and school sites proposed to bring about this neighborhood unit organization are all well within the power of the city to carry out. These changes, howeyer, represent merely a minimum program. More comprehensive measures are required to bring about the finest type of residential neighborhood involving the proper relationship of residential buildings to each other and to school, stores and recreational facilities, and the charm of harmonious architecture and attractive landscaped open spaces and vistas.

Such a scheme, substituting a single, unified, large-scale building operation for the usual haphazard, unrelated, scattered real estate development, requires that all property within a school district be assembled from a multiplicity of small holdings into a single ownership. In order to accomplish this difficult land-assembly, which would be exceedingly costly if done by ordinary methods, the report suggests a novel procedure consisting of the following steps:

1. The city and a large, well-financed development corporation would agree upon a site plan for the entire district.

2. The city would acquire, by condemnation where necessary, all new street areas, school sites, parks, and, in addition, all courts and other open spaces, which in effect are parks.

3. On the assumption that the small, scattered, remaining plots would not serve as "suitable building sites" under the prevailing type of real-estate development, the rest of the area might be acquired by excess condemnation, to avoid "consequential damages."

4. According to the preliminary agreement, the city would transfer the building sites to the development corporation, under restrictions, at a price equal to the cost of all land in the school district. The city would thus obtain streets and parks at no expense. The School Board would pay for school sites.

Obviously, the city cannot be expected to carry out such a land-assembly scheme for private developers unless it is for the public welfare. Wholesome, attractive housing under proper control of public authorities, safe and well-planned streets, properly located school sites, parks and playgrounds, and effective control over land use and density of building, are public benefits that amply justify the cooperation of the city, the report contends. If, however, city officials do not consider present powers adequate to undertake this procedure, the report recommends the enactment of state enabling legislation at the next session of the Legislature.

# New Building Code Aids Noise Abatement

AN important feature of New York City's new building code, adoption of which was reported in THE AMERICAN CITY last month, is the fact that it permits the use of a number of recent developments in the building field, including welding, in place of riveting, in steel construction. As welding is a noiseless operation, it is now possible to eliminate the din of the pneumatic riveter in New York City. Gilbert D. Fish, Chairman of the American Welding Society's Committee on Building Codes, and consulting structural engineer, points out that:

"Besides being quiet, welding has other advantages when used in steel construction. It makes possible stronger, stiffer joints and often effects a considerable saving in the amount of steel required. A welded joint consists of a homogeneous mass of solid metal. When properly designed, it is as strong as the steel members it joins and of course has nothing to slip or give. This makes welding especially useful for tall buildings that have to be heavily braced against wind and for buildings designed to resist earthquakes.

"Steel is saved when welding is used, because the design of the steel members can be simplified, and details otherwise required can be omitted. The saving amounts to from 4 to 10 per cent of the total steel used in the average building, and may run as high as 25 per cent in certain forms of trusses and plate girders. There is also a saving in the time required to fabricate the members, thus making quicker deliveries possible.

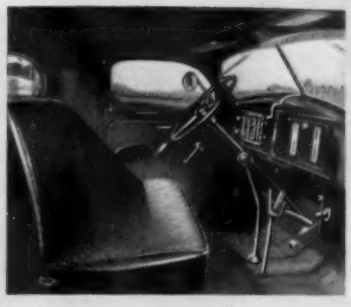
"Several hundred welded buildings of large size have been erected in this country and abroad, including buildings at Yale, Vassar, Mt. Holyoke, and Trinity College, hospitals in New Haven and Brooklyn, schools in Mt. Vernon, New York and Greenwich, Conn., the recent addition to the Bank of England, London, and also numerous factory buildings, bridges, oil refineries, and other structures.

"The safety of welded joints is assured by an adequate system of supervision, inspection, and field tests. No welded construction work has ever failed. Welding can be done with either the oxyacetylene torch or the electric arc, but in practice the electrical method is ordinarily employed."

From the James F. Lincoln Arc Welding Foundation, of Cleveland, comes an endorsement of New York City's action as a forward step, and the prediction that the number of municipalities permitting the use of welding in building construction will be considerably increased in the near future. A sound basis for progress in this direction should result from the intensive research for which the Lincoln Foundation has set up a fund of $200,000 to be used as awards in stimulating scientific study of arc welding and its uses.

The number and size of these awards have aroused widespread interest. There are a total of 446 separate awards ranging from $100 to $10,000. The grand award is $13,700. Individuals engaged in the design, engineering, manufacture, fabrication or construction of any product or structure of metal may participate. Further details may be secured from A. F. Davis, Secretary, P. O. Box 5728, Cleveland, Ohio.

*International Six-Wheeler with dump body of Boulder-Dam type. Armor-plate shield protects cab and driver.*



The ALL-STEEL CAB—one of the many advanced features in the new International line. Illustration at the right shows the interior of the roomy, well-appointed de luxe cab. Driver comfort, clear vision, and safety are assured in every International model, Half-Ton up.

# THE *New* INTERNATIONALS

***Heavy-duty champion of the truck world at the top of his form—another of the new International Trucks, a powerful six-wheeler shown with armored dump body.***

International Harvester presents to users of trucks the latest and finest products of its automotive plants—trucks at the peak of today's efficiency with a styling of exterior that is yours to judge. *All the new Internationals are as NEW in engine and chassis, in structural refinement, in every vital detail, as they are NEW in streamlined distinction for the highway. All are ALL-TRUCK, and all are as modern as today's fine cars.*

The International line offers a trim, streamlined unit for the Half-Ton field and a wide range of sizes for every type of load and hauling requirement. Here at the far end of the *complete line* is a truck for big tonnage, brute performance, and economy on an impressive scale—a finer product for the heavy-duty field to which International sells *twice as many trucks as any other manufacturer.*

See the new International Trucks. There is the right model and size awaiting your pleasure in the new array of trucks now on display at all International branch and dealer showrooms.

INTERNATIONAL HARVESTER COMPANY
(INCORPORATED)
606 S. Michigan Ave. Chicago, Illinois

## Read what this driver writes:

International Harvester Company,
Chicago, Ill.

As one of the drivers in the Payne fleet at Grand Coulee Dam, I was very much interested in your recent ad on the subject.

I am majoring in mechanical engineering at the University of Washington. I earn my expenses driving and repairing heavy trucks during vacations and other times. I have worked for practically all of the major trucking contractors in this part of the country, driving all the more popular brands of heavy dump trucks.

I am a most enthusiastic booster for the International six-wheelers. I drove the one belonging to Goodfellow Bros., Wenatchee, Wash., during its term of operation at Coulee Dam. Operating side by side with other dual-drives, the International was invariably picked for the toughest assignments. It became known without question as the toughest, most dependable, yet cheapest truck to operate per yard-mile of any truck on the project.

Yours respectfully,

Seattle, Wash. Harold T. Smith
February 13, 1937 4014 Brooklyn St.

# INTERNATIONAL TRUCKS

# Distribution System Operation

## *Problems and Solutions in Honolulu, Hawaii*

THE recent construction program of the Board of Water Supply of Honolulu, Hawaii, carried on with the cooperation of the Public Works Administration, created a great deal of extra work in making the connections for new installations to existing water mains and in changing service lines. As there has been no increase in the personnel of the Distribution System Division of the Board of Water Supply during the past two years, some of the routine maintenance was deferred. The actual number of work orders executed during the past two years, classified as to cost, are shown below:

| Classification by Cost of Work Orders | Number of Work Orders 1935 | 1936 |
|---|---|---|
| Less than $50 | 3,520 | 3,819 |
| From $50 to $100 | 117 | 116 |
| From $100 to $200 | 59 | 45 |
| From $200 to $400 | 22 | 33 |
| From $400 to $600 | 9 | 11 |
| From $600 to $1,000 | 8 | 10 |
| From $1,000 upwards | 9 | 10 |
| Total | 3,744 | 4,044 |

The present distribution system consists of two main pressure zones, namely: Low-Service, supplying the district between sea-level and 100 feet; High-Service, supplying the district between 100 feet and 300 feet. The Mountain-Service zones supply the districts above the 300-foot contour.

### *Distribution System*

A study of the distribution system of Honolulu shows that numerous areas are in immediate need of additional water mains and that there are many streets on which development is such that water mains should be installed as soon as practicable and as soon as funds permit. Approximate estimates indicate that about 65 miles of water mains consisting of 175,000 feet of 6-inch, 100,000 feet of 8-inch and 60,000 of 12-inch cast iron water mains are needed and should be installed within the next five years. The estimated cost of these mains installed is $1,500,000. It is expected that this work will be financed by the sale of a reasonable amount of bonds each year rather than by increasing water rates. Since the present leeway between outstanding city bonds and the city bond limit is small, the Board of Water Supply does not feel that it should expect relief from the sale of city bonds. Therefore, under provision of the Revenue Bond Act, the Board of Water Supply is preparing to issue $300,000 worth of 4 per cent revenue bonds per year for two years, as soon as Congress gives approval of the extension of the Act.

AN AUTOMOBILE AFTER A COLLISION WITH ANOTHER AUTOMOBILE ENDED ITS GYRATIONS AGAINST A FIRE HYDRANT

The accompanying table shows the total length and extensions of water mains, with costs for the years 1935 and 1936. The total net length of water mains on December 31, 1936, was 286.49 miles.

### *Maintenance Personnel*

Two six-men crews, and three two-men crews, each with a truck, handle an average of twenty maintenance jobs per day on the water-distribution system. The maintenance of hydrants has been found inadequate, and therefore another hydrant crew is to be added shortly. An additional crew is also needed to devote its entire time to the mapping, inspection and maintenance of some 6,000 gate-valves in the distribution system.

WATER MAINS—LENGTHS AND EXTENSIONS (IN FEET) WITH COSTS YEARS 1935 AND 1936

| Size in Inches | Prior to Jan. 1, 1935 | Net Total Dec. 31, 1935 | 1935 Extensions Total Cost | 1935 Extensions Cost Per Foot | Net Total, Dec. 31, 1936 | 1936 Extensions Total Cost | 1936 Extensions Cost Per Foot |
|---|---|---|---|---|---|---|---|
| Galvanized | | | | | | | |
| 1 | 7,665 | 7,756 | $12.65 | $.14 | 7,638 | ..... | ..... |
| 1¼ | 1,242 | 1,834 | 167.25 | .28 | 2,532 | $222.27 | $.32 |
| 1½ | 8,658 | 8,785 | 124.16 | .98 | 11,001 | 574.27 | .25 |
| 2 | 64,264 | 67,789 | 3,719.23 | .83 | 70,623 | 1,761.82 | .53 |
| 2½ | 3,469 | 3,527 | ..... | ..... | 3,881 | 478.41 | .63 |
| 3 | 59,811 | 59,406 | 781.89 | 1.20 | 60,063 | 620.04 | .92 |
| 4 | 56,530 | 56,038 | 841.19 | 3.17 | 55,887 | ..... | ..... |
| 6 | 658 | 623 | ..... | ..... | 623 | ..... | ..... |
| 8 | ..... | 44 | 160.77 | 3.65 | 44 | ..... | ..... |
| Cast Iron | | | | | | | |
| 4 | 40,610 | 40,610 | ..... | ..... | 39,276 | 885.22 | 1.76 |
| 5 | 12 | 12 | ..... | ..... | 12 | ..... | ..... |
| 6 | 539,526 | 546,974 | 22,413.73 | 2.92 | 551,976 | 14,682.12 | 2.72 |
| 8 | 226,179 | 257,329 | 118,469.06 | 3.80 | 294,336 | 111,815.57 | 3.02 |
| 10 | 750 | 750 | ..... | ..... | 750 | ..... | ..... |
| 12 | 239,247 | 244,459 | 29,579.65 | 5.58 | 259,365 | 84,673.28 | 5.65 |
| 14 | 3,420 | 3,420 | ..... | ..... | 3,420 | ..... | ..... |
| 15 | 11,320 | 11,320 | ..... | ..... | 11,320 | ..... | ..... |
| 16 | 40,080 | 41,058 | 10,766.65 | 11.01 | 41,581 | 7,833.94 | 14.98 |
| 18 | 31,034 | 31,034 | ..... | ..... | 31,034 | ..... | ..... |
| 20 | 44,148 | 44,148 | ..... | ..... | 44,148 | ..... | ..... |
| 24 | 23,156.5 | 23,156.5 | ..... | ..... | 23,156.5 | ..... | ..... |
| Total | 1,401,779.5 | 1,450,072.5 | $187,036.23 | $3.64 | 1,512,686.5 | $222,546.94 | $3.36 |
| Miles | 265.49 | 274.63 | | | 286.49 | | |

# 20-TON LOADS CUT DIRT-MOVING TIME ON ALL-AMERICAN CANAL

## New Type Goodrich Tires Speed Work—Cut Costs

Out west they do things in a big way. Right now they're building the All-American Canal—an 80-mile waterway from the Colorado River through California's Imperial Valley. It's one of the largest dirt-moving projects on record. Three and one-half million yards of earth will be moved before the canal is completed.

Big, massive trucks of the George W. Condon Co. haul away 20 tons of dirt at a load. But only with a new kind of tire were these trucks practical. Goodrich engineers designed a special tire (it weighs almost 500 pounds) just for such service.

At the Canal and at some of the big government dams, these tires not only withstand the strain of crushing loads but carry on where the ground temperature reaches as high as 140°. They plow through loose sand, over jagged rock—all in all, the toughest jobs man ever handed tires.

These earth-mover tires are Goodrich Super-Tractions, specially-built huskies that can carry nine tons each. The tread design provides positive traction and resistance to spinning and sideslip. A riding bar in the center of the tires distributes the load and provides long, even wear.

### Tires Triple Protected

Like all Goodrich Silvertowns, this tire is Triple Protected against sidewall breaks and blow-outs. This exclusive Goodrich construction actually checks 80% of all premature tire failures.

You don't have to have 20-ton loads in order to get the savings of Goodrich Super-Traction Silvertowns. These tires are available in sizes from 6:00-20 to 18:00-24—a size and type for every construction job.

Whether you need tires for trucks or air compressors, concrete mixers or tar kettles, scrapers or concrete buggies, the Goodrich dealer has a *special tire* at a money-saving price. Call him today for prices.

*Goodrich Earth-Mover Tires at work on a government dam.*

**Goodrich** *Triple Protected* **Silvertowns**

SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES

A 5-TON TRUCK IN COLLISION WITH A HIGH-PRESSURE FIRE HYDRANT

## *Hydrant Maintenance*

There was a total of 1,864 fire hydrants on the distribution system as of December 31, 1936. Of these, 46 were added in 1935, and 51 in 1936. In addition, some of the older-type hydrants were replaced with newer types. It is planned that during the next two years the recommendations of the National Board of Fire Underwriters will be followed and additional fire flow capacity tests made.

Hydrant maintenance during 1935 and 1936 in Honolulu involved the usual painting, repairs and testing. Of the hydrants in service at the end of 1936, there were 1,194 Mathews hydrants, 376 Ludlow hydrants, 206 Eddy hydrants, 40 Chapman hydrants, and 48 Crane hydrants.

Smash-ups like those illustrated resulted in need of replacement for a considerable number of hydrants in both years. The tabulation below shows the destructiveness of users of hydrants outside of the water and fire departments. The listing records the number of 2½-inch hydrant stems broken by various groups.

| | 1935 | 1936 |
|---|---|---|
| City and County Garbage Department | 22 | 20 |
| City and County Road Department | 5 | 11 |
| Territorial Highway Department | 7 | 5 |
| WPA | 2 | 2 |
| Unknown | 12 | 0 |
| Total | 48 | 38 |

—The material for this article came from the Sixth Biennial Report of the Honolulu Board of Water Supply, and has been checked and amended by Frederick Ohrt, Manager.

# Decentralization of Great Cities Urged

UNDER the leadership of F. J. Osborn, of Welwyn Garden City, who has recently become Honorary Secretary of the Garden Cities and Town Planning Association of Great Britain, that organization is undertaking an intensive campaign for the decentralization of great cities. Among the major objectives included in the Association's new statement of policy are the following:

To urge the necessity of an immediate check to the growth of London and other overgrown towns, coupled with a definite policy of decentralization of industry, business and population into new towns of the garden city type and into existing towns of moderate size.

To fix in the public mind, as the pattern for future urban development, the garden city or satellite town—by which is meant a planned town, limited in size but large enough to provide a modern economic, social and civic life, designed both to live and work in, surrounded by a permanent country belt.

To advocate national planning as essential to complete the structure of statutory town and country planning. And especially, as part of national planning, control of the size of towns and of major movements of population by means of guidance of the location of industry and by other extensions of the planning method.

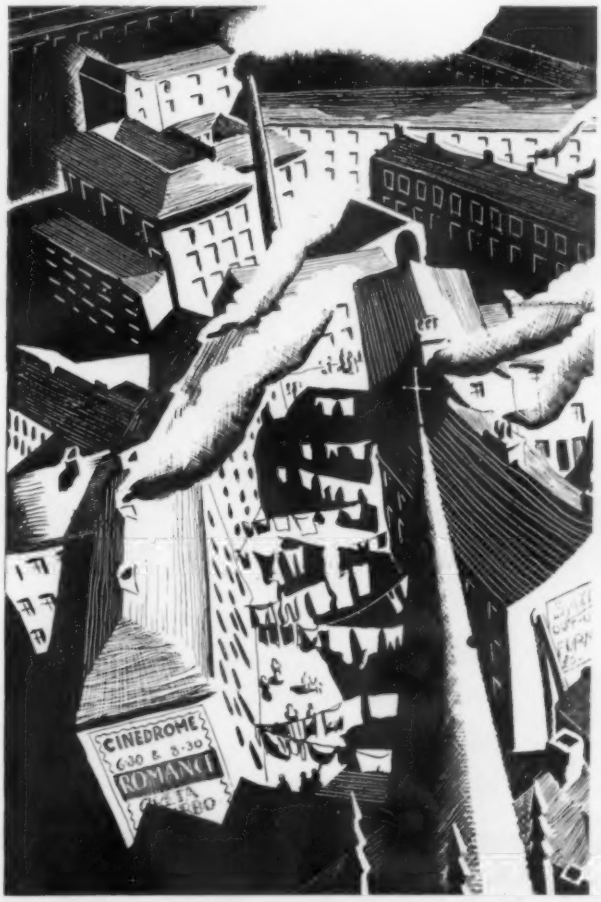
To point out that high flats and tenements, and other developments that increase or maintain high density in congested areas, while they seem to be forced on large towns by existing conditions, accentuate rather than solve the problems of slums and transport, while providing an environment entirely unsuited to family life.

To oppose "ribbon" or scattered development as spoiling the open countryside, and to encourage group development with well-equipped community centers and recreation spaces.

In the quarterly review, *Town and Country Planning*, effective use is made of cartoons, such as that here reproduced, to emphasize the absurdity of inadequately controlled urban development. In the June issue Mr. Osborn says editorially:

"This sensational fact cannot be too often repeated: *At this very moment of time—in this very summer of* 1937*—we, the people of England, are building and extending our towns in a manner that we know to be wrong, that we know to be destructive of a good life for the present generation and for generations to come.*"

Is not this indictment too generally true of our American cities also?




*Drawing by Arthur Wragg*

"ALL ENGLAND IS A GARDEN"

# JOY SNOW LOADER

## ASSURES NEW ECONOMIES IN SNOW REMOVAL

### OUTSTANDING FEATURES

- Unequalled Gathering Mechanism
- High Capacity
- Wide Discharge Range
- High Traveling Speed
- Minimum Height

**The patented swinging conveyor and gathering head, full hydraulic operation and centralized control in heated cabs are features of Joy Snow Loaders that contribute to low cost snow removal. Loads from side to rear, handles snow, slag, cinders, etc. Capacities 10 and 20 yds. per minute. . . . Write for bulletins.**

**JOY MANUFACTURING CO.**
**FRANKLIN · · · PENNSYLVANIA**

When you write for that catalog, kindly mention THE AMERICAN CITY.

# Servicing Sewage Meters

## *Proper Routine Care Is Easy and Insures Accuracy*

By W. W. GLOVER
Simplex Valve and Meter Co., Philadelphia, Pa.

THE treatment of sewage is a process which has undergone a great many changes, particularly in recent years when greater effort than ever has been exerted on the part of state boards of health, engineers, chemists and industrial organizations in its development.

Meters must necessarily play an important part in the investigations and the control which must be maintained over the various phases of sewage-plant operation. The entire inflow of raw sewage, the balancing of flow through aeration or sedimentation tanks, the amount of sludge returned for conditioning sewage, the sludge delivered to the digestion tank, and the digested sludge delivered to drying beds, is metered with a definite purpose in mind. This purpose is the delivery of a satisfactory plant effluent. It therefore behooves the plant operator to take seriously the part of his job which is the maintenance of these important items of equipment.

Generally speaking, if sewage meters fail to provide the service of which they are capable, it is due to inattention, air, gas or sludge, or to some combination of these items. These items are aside from the difficulties which may readily be avoided by the cooperation of the engineer and the manufacturer in adapting the type of meter to the particular conditions present.

Inattention should not be a contributing factor, but sometimes is. This may be due to lack of information or to disinterest. The former is easily eliminated. The equipment manufacturer is always ready to be of assistance, preferring to have his meter operating properly, in order to satisfy his pride in his product, if nothing else. The latter is not a problem for this paper.

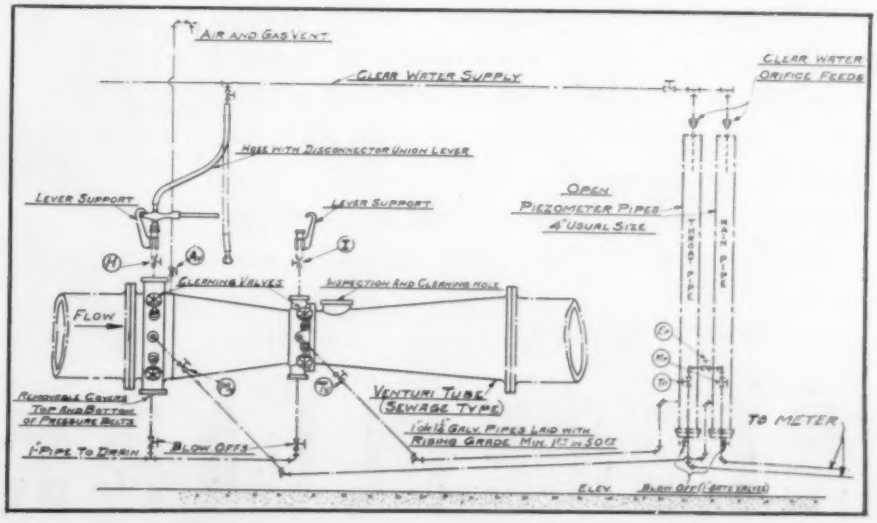
### *Air an Ally and an Enemy*

Under the heading of "Air" should be considered that which belongs in the system, as well as that which does not. In the former category is the air used as a means of transmitting differential pressure from the primary device to the secondary device or meter. The system of air drive has been the answer to many perplexing metering problems. Therefore, the quantity and quality of the air used should be given due consideration. The condition of air washers, or other means of insuring the delivery of clean air, should be periodically checked, otherwise the devices for delivering air to the system may become clogged and the unit possibly inoperative. If orifices are used, inspect these at intervals to be sure they are clean. There should be an indicator of the quantity of air flow. This should be observed in order to be sure that the proper amount of air is being delivered according to the manufacturer's stated requirements.

At certain points in the metering system, air becomes an enemy rather than an ally. In a closed hydraulic system, air should be removed from the instrument as well as from any high points in pressure lines or sediment tanks between the instrument and the primary device. It is also advisable to try for air in the main, and if a venturi tube is used, at the pressure belts. This, however, will not be a chronic ill if the metering installation has been properly made.

### *Sewage Gas and Sludge*

Sewage gas is a problem when it attacks certain small




INSTALLATION OF A SEWAGE METER WITH OPEN PIEZOMETER PIPES

# THE "Open Season" IN SALT LAKE CITY

120 SALT LAKE CITY BLOCKS A D
are cleared of snow by th
Diesel No. 11 Auto Patr
equipped with snow-plo
The snow is pushed w
back over the curbs
give summer width
winter streets.

AND IN THE SUMMER
One of the Auto Patrol
here shown reshaping
oiled street. It has co
pleted scarifying and
now blading in prepa
tion for rolling. Ea
machine consumes
gals. of 8c fuel per ho

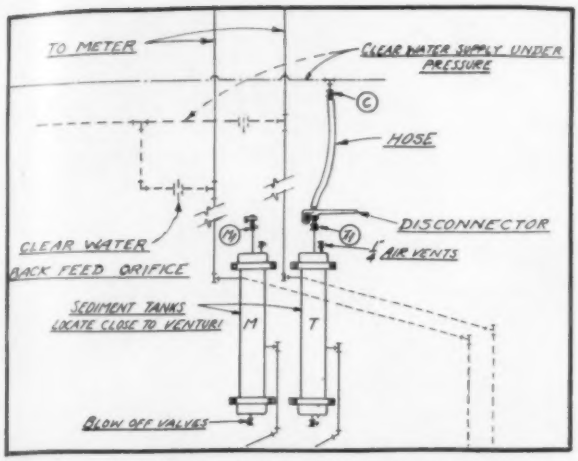
THANKS to its two "Caterpillar" Diesel No. 11 Auto Patrols, Salt Lake City, Utah, has *four* open seasons—spring, summer, fall and winter. These versatile machines, equipped with snow-plows, keep the streets open during winter's worst; fitted with other accessories, keep them clean and shipshape the rest of the year. The "Caterpillar" Auto Patrol is ideal for your street-maintenance jobs. It has the power and traction needed, is a dependable worker, costs so little to own and operate. We'd like to give you facts and figures. Write us, or see your "Caterpillar" dealer.

**CATERPILLAR**

REG. U.S. PAT. OFF.

**TRACTOR CO**
**PEORIA, ILL**

WORLD'S LARGEST MANUFACTURER OF DIESEL ENGINE
TRACK-TYPE TRACTORS AND ROAD MACHINE




PIPING DETAILS FOR SEDIMENT TANKS WHEN USED IN A CLOSED OR PRESSURE SYSTEM

Pipes shown as dotted lines are additional connections used when continuous clear-water back feed is provided

but nevertheless important parts of the instruments. Hydrogen sulphide, which is liberated, actively attacks bronze stranded cable. Manufacturers have overcome this by using monel or stainless steel cables. Other small brass or bronze parts may be given a coat of light grease or vaseline as a protection.

Probably the most important item in successful metering is the elimination of sludge or sediment. More attention must be given as treatment proceeds, until finally we reach digested sludge—naturally the hardest to keep moving.

## *Care of the Venturi Tube*

Let us consider the venturi tube, since it is most universally used, as the primary device. If it has pressure belts at main and throat, these will require periodical rodding and flushing. Usually, ample access to these belts is provided in the form of removable covers. Clean water under pressure should be available to thoroughly scour and flush these. The belts will also be provided with cleaning valves opposite the piezometer openings which take the pressure from the measuring sections into the belts. The cleaning valves are to be pushed in fully, revolved to provide a reaming action and withdrawn. The operation should be repeated several times. This is vitally important, since the condition of the piezometers affects the accuracy of measurement, and here is the first point for particles to accumulate.

It may not be clear, perhaps, why sludge should get far beyond this point—into pressure lines, sediment tanks, piezometer pipe, and even into the instrument to the extent that the internal parts cannot function at all. In the case of a closed hydraulic system, there is a mercury chamber with a float or floats. As flow changes, the mercury column and float or floats adjust themselves to balance the differential pressure created at the primary device. A transfer of liquid results. That which leaves the primary device carries with it particles in suspension which settle out when reaching a quiet place; that which returns to the primary device is generally clear, as the velocity of transfer is low enough not to greatly disturb sediment in the lines, etc. A great many such transfers may occur in a day's time, and thus sediment works its way gradually toward the instrument. In a system using piezometer pipes of large diameter with floats to operate the instrument, the volume of the transfer is naturally much greater.

Where the flow measured is from pumps controlled by automatic float switches in the suction well, the greatest frequency of transfer occurs, and therefore particular attention is required.

In a closed system sediment chambers may be introduced, providing a relatively large volume where sediment may collect and so not reach the instrument. Where heavy sludge is being measured, such devices may be augmented by a continuous back-flow of clear water. It is necessary to blow out the sediment from these tanks at intervals; likewise, the back-flow feed should be inspected to be certain that it is continuous, and that the proper equal qnantities of back-flow are present in both high- and low-pressure lines.

Where open piezometer pipes are used or float pipes serve the same purpose, a continuous clear-water back-flow should always be provided. Be certain that the back-flow is likewise continuous and equal into each pipe.

## *Weekly Inspection Advisable*

It is not possible to state at just what intervals pressure belts must be cleaned, cleaning valves operated, sediment tanks flushed, back feed control inspected, air flows checked, etc. A general weekly inspection of all points, however, will soon indicate what intervals are advisable for a particular installation. If the operator will determine which of the above features are a part of his installation, and, realizing the simplicity of the proper care, will set up a schedule of inspection and operation, his reward will be a metering unit which is dependable, a credit to the plant and a credit to him, and records which may be properly used in the progressive study of sewage treatment. Remember, the installation was installed and operating satisfactorily in the beginning. It can and should be maintained at proper operating efficiency.

# Cast Iron Pipe in Sewage Works

APPROXIMATELY 9,000 linear feet of cast iron pipe, varying in size from 4-inch to 36-inch, with a total weight of 290 tons, was installed in the construction of the Appleton, Wis., sewage-treatment plant and miscellaneous connecting sewers, according to F. E. Fulmer, Resident Engineer for Greeley and Hansen of Chicago, Ill. In practically all cases where pressure piping was required in sizes above 4-inch, cast iron pipe was selected.

Cast iron pipe was used extensively at the treatment plant for outside as well as inside piping to carry sewage, raw and digested sludge, scum, water, and air. At the treatment plant all cast iron pipe, except the water mains, was installed and paid for as shown in the following table:

| Bell-and-Spigot Pipe | 12 Feet or More Long | 3 to 12 Feet Long | Specials |
|---|---|---|---|
| Weight—pounds ... | 125,638 | 36,086 | 36,090 |
| Price per pound installed ..... | $0.047 | $0.065 | $0.102 |

| Flanged Pipe | 12 Feet or More Long | 3 to 12 Feet Long | Specials |
|---|---|---|---|
| Weight—pounds ... | 3,130 | 8,238 | 30,372 |
| Price per pound installed ..... | $0.063 | $0.093 | $0.132 |

*DESIGNED FOR CITY USE. This is Good Roads Champion Reversible Blade Plow Model 121.*

# Get ready NOW to keep your city free from snow

**NATURALLY, you want to be prepared for the first snowfall. Don't take any chances —order your snow plows early. Call in a Good Roads Champion representative. He will help you choose, from the most complete line of snow plows in the world, the type and size of Good Roads Champion Snow Plow to suit your local snow conditions, the size of your trucks, your traffic problems, and your budget.**

*Tapered Blade Adjustable Plow*

*Patented Safety Blade Trip*

*Power-Hydraulic Cross-Walk Plow*

**ASK FOR PICTURES and description of the Good Roads Champion Reversible Blade Plow. This plow is specially designed for use on city streets. The Good Roads Champion Reversible Blade Plow can be adjusted to plow right down on the street surface in order to prevent dangerous ice formation. The Patented Safety Blade Trip protects plows and trucks from damage caused by striking manhole covers, curbs or similar obstructions. The blade can be reversed so that snow can be pushed to either side of the street. Good Roads Champion Reversible Blade Plows are made in sizes to fit any truck.**

**SEND COUPON for free information on these plows and the many side-walk and piling plows for tractors, and center plows for trucks.**

## GOOD ROADS MACHINERY CORP.

**Kennett Square, Pa.**

Good Roads Machinery Corp., Kennett Square, Pa.
Please send me free your catalog on Good Roads Champion Snow Plows.
Name .....
Official Title .....
Address .....
City ..... State .....
AC-1

# Concrete Bases for City Streets

## *Summary of Reports from 306 Cities*

THROUGH the generous support of municipal engineers and paving officials we are able to publish reports from a widespread group of cities on the use of concrete bases for the support of surface courses on city streets. The letter symbols on this page identify the various kinds and types of pavement reported.

### Legend

A —Asphalt
Ab —Asphalt block
Ac —Asphaltic concrete
As —Ashes
B —Bitulithic
Ba —Basalt blocks
Bi —Bituminous; bituminous surfacing
Bl —Black, or black top
Br —Brick
Bu —Business streets
C —Concrete
Cal —Caliche
Cb —Cobblestone
Ch —Chatt
Ci —Cinders
Co —Cold bituminous; cold-laid plant mix
Cr —Crushed stone, macadam
E —All types
Em —Emulsified asphalt
G —Granite block
Gr —Gravel
H —Heavy traffic streets
M —Macadam
O —Oil, road oil, oil macadam
Oy —Oyster shell
Pe —Penetration macadam
Pl —Hot laid plant mix
R —Rock asphalt; Kentucky rock
Re —Recut block
S —Sheet asphalt
Sb —Sandstone blocks
Sc —Street-car tracks
Sd —Bituminous stabilized
Ss —Calcium chloride or salt stabilized
St —Stone block
T —Topeka, Topeka tops
Ta —Tar
W —Warrenite or Warrenite bitulithic
Wb —Wood block

**NOTES**

[1]Except concrete and macadam.
[2]Except penetration macadam.
[3]Except macadam and concrete.
[4]Includes villages of Fairview, Parkview, N. Olmsted, Westview and Olmsted Falls.

### Pavements Under Which Concrete Bases Are Used

| | |
|---|---|
| **Alabama** | |
| Anniston | W, R |
| Birmingham | A, Ac, B |
| **Arizona** | |
| Bisbee | Br |
| **Arkansas** | |
| Fort Smith | Br, A |
| Hot Springs | S |
| Little Rock | A, Br, Wb |
| Mena | C |
| Morrilton | S |
| **California** | |
| Bakersfield | A |
| Berkeley | S, Ac, Bl, C |
| Chico | S |
| El Monte | A, Pl |
| Exeter | S, T |
| Fillmore | Ac |
| Fresno | W |
| Glendale | Ac |
| Los Angeles | Bi |
| Merced | S |
| Modesto | Ac |
| Oakland | Br, Ba, Pl |
| Orange | A |
| Palo Alto | Ac |
| Pasadena | Ac |
| Pomona | S |
| Redlands | A |
| San Francisco | Ac, Br |
| Santa Cruz | Bi |
| Santa Paula | S |
| Whittier | Ac |
| **Colorado** | |
| Colorado Springs | S, Ac |
| Denver | Bu |
| **Connecticut** | |
| Bristol | G, S, Co |
| Hartford | A, G, Ab, Br |
| **Delaware** | |
| Wilmington | Br |
| **District of Columbia** | |
| Washington | S, Ac |
| **Florida** | |
| Jacksonville | Br, A |
| Marianna | Co |
| **Georgia** | |
| Columbus | Br, A |
| Decatur | A |
| Lagrange | G |
| Macon | Br, G, A |
| Rome | S, W |
| Waycross | S |
| **Idaho** | |
| Boise | Sc, C, Pe |
| Idaho Falls | Ac |
| **Illinois** | |
| Aurora | Br, Bi |
| Belleville | Br, Wb |
| Chicago | A, Br, G, Wb |
| Danville | C |
| Forest Park | Br, M |
| Jacksonville | A, Br |
| Kewanee | Br, S |
| Lake Forest | R, Ac |
| Oak Park | A, Ac, Br |
| Robinson | Br |
| Rockford | W, Br |
| **Indiana** | |
| Crawfordsville | Br |
| Gary | A |
| Hammond | A, Br |
| Indianapolis | A, Ac, Br, C |
| Lafayette | Br, A |
| La Porte | S, R |
| Mishawaka | S, Ac |
| Richmond | A, Br, Pl |
| South Bend | S, Ac, Br |
| **Iowa** | |
| Ames | A |
| Boone | E |
| Cedar Rapids | E |
| Centerville | Br, B |
| Clear Lake | S |
| Clinton | Br, S, Ac |
| Davenport | Br, A |
| Fort Dodge | E |
| Keokuk | Br, A |
| Marshalltown | Br, A |
| Mason City | Br, S |
| Newton | S, Ac, B, Br |
| Ottumwa | Br |
| Red Oak | A, Br |
| Sioux City | A |
| Waterloo | Br, A, Ac |
| Webster City | A |
| **Kansas** | |
| Coffeyville | Br, Ac, S |
| Emporia | Br, Ac |
| Hutchinson | Br, Ac |
| Iola | Ac |
| Kansas City | Br, A |
| Manhattan | Br, A |
| Topeka | Br, Pl |
| Wichita | Br, Pl |
| **Kentucky** | |
| Ashland | Br |
| Covington | A, Br |
| Fort Thomas | A |
| Louisville | S, Ac |
| **Louisiana** | |
| New Orleans | E |
| **Maine** | |
| Bangor | Wb, Re |
| Portland | G |
| Presque Isle | Bu |
| **Maryland** | |
| Baltimore | S, Br, G |
| Cumberland | Br, Co |
| **Massachusetts** | |
| Boston | S, Ac, G, Wb, Br |
| Brookline | A, G |
| Chicopee | G, Wb, S |
| Concord | C |
| Haverhill | Pl, Ac |
| Lawrence | G, Br |
| Lynn | Pl |
| Medford | Pl |
| New Bedford | G |
| North Adams | C |
| Palmer | Br |
| Revere | S |
| Somerville | G, Br, Pl, Bi, Pe |
| Springfield | S, Ac, Wb, G, Br |
| Worcester | G, S |
| **Michigan** | |
| Big Rapids | A |
| Detroit | A, Br |
| Flint | S, Br |
| Grand Rapids | A, Br |
| Hastings | Br |
| Lansing | S, Br |
| Niles | S, Ac, Br |
| Pontiac | Br, A, Ac |
| Port Huron | S, Br |
| Saginaw | Br, A |
| South Haven | Br |
| **Minnesota** | |
| Columbia Heights | Br |
| Duluth | Br, Sb, A |
| Faribault | Br, Wb |
| Hutchinson | Ac |
| Rochester | Br, Wb, A |
| St. Paul | E |
| **Mississippi** | |
| Canton | R, S |
| Hattiesburg | Br, A |
| **Missouri** | |
| Fulton | Br |
| Higginsville | Br |
| Jefferson City | Br |
| Kansas City | E[1] |
| Nevada | R |
| St. Louis | E |
| **Montana** | |
| Bozeman | B, Bu |
| Great Falls | B, Wb |
| Miles City | Wb, Ac, B |
| Missoula | A |
| **Nebraska** | |
| Fairbury | Br |
| Grand Island | Br, S |
| Lincoln | E |
| **New Jersey** | |
| Bayonne | A, Br, G |
| Camden | A, St |
| Clifton | Bi |
| Cranford | A |
| Englewood | Ac, Ab, S |
| Newark | S, Ab, Ac, B, Br, G, Wb, W, Sb |
| New Brunswick | S, Br, Ab |
| Plainfield | Pl, Br, St |
| Princeton | S |
| Roselle | Ac |
| **New York** | |
| Amsterdam | St, Br, S |
| Auburn | Br, A, B |
| Binghamton | A, G |
| Bronx, N. Y. C. | E |
| Bronxville | A |
| Buffalo | E |
| Dunkirk | S, C, Br |
| Elmira Heights | Br |
| Endicott | Ac, Br |
| Gloversville | Br |
| Hamburg | Br |
| Hoosick Falls | Br |
| Kingston | Br |
| Little Falls | Br, Co, Pl |
| Lockport | Br, A |
| Niagara Falls | Br, A, Bi |
| N. Tonawanda | E[3] |
| Olean | Br, Pe, Co, Pl |
| Oswego | Br |
| Port Chester | St, Br, Ac |
| Poughkeepsie | Br, Wb, G, A |
| Queens, N. Y. C. | S, G |
| Richmond, S. I. | E[3] |
| Rochester | A, Ab, Br, Sb, Wb |
| Rome | S, W |
| Rye | Ab |
| Salamanca | Br |
| Schenectady | S, G, Co |
| Seneca Falls | Br, G |
| Utica | St, Br, Pl |
| **North Carolina** | |
| Roanoke Rapids | Cr |
| Shelby | Ac, S |
| Statesville | S, Ac |
| **North Dakota** | |
| Dickinson | S |
| Fargo | Ac, B, Br |
| **Ohio** | |
| Akron | Br, S, Ac, St |
| Alliance | Br, A |
| Athens | Br, S |
| Bucyrus | Br, A |
| Canton | Br, S, Ac |
| Cincinnati | A, G, Br |
| Cleveland Heights | Co, Ac, S, Br, G, Bi |
| Columbus | Br, A, G |
| Crestline | Br |
| **Ohio (cont).** | |
| Dayton | Br, A, G |
| Dover Village[4] | Br, Ac |
| Hamilton | Br, S, Ac |
| Lakewood | Br, A, Wb, G |
| Lancaster | Br, S |
| Lebanon | Br |
| Lorain | Br, A |
| Mansfield | Br, A |
| Massillon | Br, A, Ac |
| Middletown | Pe, S |
| Newark | Br, C |
| Norwood | Br, Pl, G |
| Sidney | Br, Pl |
| Springfield | Br, Ac, S, Wb, G |
| Warren | Br |
| **Oklahoma** | |
| Chickasha | A, Br |
| Oklahoma City | R, S, Ac |
| Perry | Br |
| Ponca City | Br |
| Tulsa | Br, A |
| **Pennsylvania** | |
| Allentown | S, Ac |
| Beaver Falls | Br, A |
| Berwick | Br, G |
| Bradford | Br, Ab, Ac |
| Clairton | Br |
| Dickson City | S |
| Easton | Br, Pl, Co |
| Edgewood | Br |
| Edwardsville | Br, A |
| Ellwood City | Br |
| Erie | A, Br |
| Ford City | Br |
| Greenville | E |
| Harrisburg | Ac, S, Br, Bi |
| Hazleton | Co, Ac, S, C, Br, G, Bi |
| Lewisburg | Br |
| Lower Merion T'ship | Ac |
| Mt. Carmel | Br |
| New Brighton | Br |
| Oil City | E |
| Philadelphia | A, G, Br |
| Phoenixville | Br, S |
| Pittsburgh | A, Br, St |
| Punxsutawney | Br |
| Reading | S, Br |
| Sayre | Br |
| Scranton | A, Br, St |
| Swarthmore | C |
| W. Homestead | Br |
| W. Reading | Br |
| Wilkinsburg | Br |
| **Rhode Island** | |
| Newport | Wb, G |
| Pawtucket | Ac, S, G |
| **South Carolina** | |
| Charleston | S, Ac |
| Greenville | T, S |
| Marion | Ac, S |
| Spartanburg | A, C |
| **South Dakota** | |
| Lead | Br |
| Sioux Falls | A, St, B |
| Watertown | Ac |
| **Tennessee** | |
| Chattanooga | Br, S, Ac, Wb, R |
| Knoxville | S, Ac |
| Maryville | S |
| **Texas** | |
| Austin | Bi, B, G, R |
| Ballinger | Br |
| Breckenridge | Br, Ac |
| Bryan | S, Co |
| Dallas | Ac, S, Br, R, Wb |
| Galveston | R |
| Longview | Br |
| Pampa | Br |
| Quanah | Br, A |
| San Antonio | Br, Wb, A |
| Wichita Falls | Br, A |
| **Utah** | |
| Richfield | Ac |
| **Vermont** | |
| Burlington | S |
| Montpelier | St |
| Vergennes | C |
| **Virginia** | |
| Danville | Ac |
| Hopewell | S |
| Lynchburg | Br, Ac |
| Richmond | E |
| **Washington** | |
| Aberdeen | A |

Wolf Creek Pass, Colorado, one of the highest passes in the Rockies, 11,500 feet above sea level, is buried under 25 feet of snow nearly every winter. And for a hundred thousand years, Nature has said: "thou shalt not pass from December to April."

But, knowing Cletracs from experience, Colorado State Highway Engineers put them to work. And in the severest winter of a generation, Wolf Creek Pass stayed open.

But—that's a Cletrac for you.

In snow removal work, as in dirt-moving, road-building, bulldozing, grading, trailbuilding, logging, or any class of work, the Cletrac takes every job as it comes along, large or small, and *licks* it.

There's a Cletrac for every snow removal job from opening up a Wolf Creek Pass to cleaning sidewalks. It's on these snow removal jobs that you appreciate the instantaneous electric starting of Cletrac Diesels . . . the easy maneuverability . . . the rugged construction . . . the positive traction of the Cletrac . . . its ability to get through any kind of snow—light, powdery snow; heavy, wet snow; hard, packed snow.

Check the performance of the Cletrac on the job. Check costs . . . speed of doing the work . . . ability to stay on the job, day and night, until the job is DONE.

## The Cleveland Tractor Co., Cleveland, Ohio

All Cletrac Diesels have now, and always have had, ELECTRIC Starting . . . modern starting.

The advantages are many: less time consumed in getting on the job in the morning . . . less idling time . . . only one engine to maintain . . . current available for electric lights . . . no secondary engine to be cranked.

**CLETRAC CRAWLER TRACTORS**

**The only tractors with controlled differential steering that keeps both tracks pulling at all times . . . on the turn as well as on the straightaway.**

| | |
|---|---|
| **Washington (cont.)** | |
| Auburn | Ac |
| Bellingham | Br, A, Ac |
| Everett | A |
| Hoquiam | A, B, Ac |
| Seattle | Br, Ac |
| Wenatchee | Br |
| **West Virginia** | |
| Bluefield | Br, Pl |
| Morgantown | Br, A |
| **Wisconsin** | |
| Antigo | A, B |
| Eau Claire | Br |
| **Wisconsin (cont.)** | |
| Fond du Lac | S, Ac |
| Fort Atkinson | Wb |
| Janesville | Br, S, Pe, Ac |
| Kenosha | Br, Ac, S |
| La Crosse | Ab |
| Milwaukee | E |
| **Wisconsin (cont.)** | |
| Oshkosh | A, Br, Wb |
| Racine | Br, S, Ac |
| Superior | A, B |
| Watertown | Br |
| Waukesha | Br |
| Wisconsin Rapids | Br |

# Alley Paving in American Cities

## *Reports from 292 Cities on the Types of Pavements Used in Alleys*

ALLEYS form an important link in the transportation systems of many American cities. They are the service arteries through which the purchases of the households are delivered and from which the solid wastes are collected. The increased paving of alleys has helped to clean up these breeding places of disease.

Through the cooperation of a large group of city officials we are able to list below the types of pavement used in many American cities. The letter symbols identify the various kinds and types of pavement reported.

### Legend

The same legend as used for the preceding statistics is used for these.

### Types of Pavement

| | |
|---|---|
| **Alabama** | |
| Birmingham | Br, C |
| Mobile | E |
| **Arizona** | |
| Bisbee | Em, Pe |
| Winslow | C |
| **Arkansas** | |
| Fort Smith | Br, M |
| Hot Springs | C |
| Little Rock | A, C, Br, Cb |
| **California** | |
| Chico | C |
| Chula Vista | C |
| Culver City | C, O |
| El Monte | Ac, Sd, Co, Pe |
| Fresno | Ac, C |
| Glendale | Ac |
| Los Angeles | C |
| Merced | C |
| Modesto | C, Ac, O |
| Monrovia | C |
| Napa | A, M |
| Oakland | Pe, Pl, C |
| Orange | C |
| Palo Alto | C, A, M |
| Pasadena | C, Ac, O |
| Pomona | C, O |
| Redlands | C |
| San Francisco | Ac, C, Ba |
| San Mateo | C |
| Santa Cruz | C |
| Santa Paula | C, Ac, Pl |
| Ventura | C, O |
| Whittier | C, Ac |
| **Colorado** | |
| Colorado Springs | C |
| Denver | C |
| Fort Collins | C |
| **Connecticut** | |
| Hartford | C |
| Windsor | Gr |
| **Delaware** | |
| Wilmington | C |
| **District of Columbia** | |
| Washington | C |
| **Florida** | |
| Marianna | C, A |
| New Smyrna | Oy |
| Vero Beach | C |
| W. Palm Beach | M |
| **Georgia** | |
| Lagrange | G |
| Macon | C, Br, St |
| Rome | E |
| Waycross | Br |
| **Idaho** | |
| Boise | Br, C |
| Idaho Falls | Ac |
| Pocatello | C |
| **Illinois** | |
| Aurora | Gr, Ci |
| Belleville | C |
| Chicago | C |
| Danville | C |
| Forest Park | C |
| Jacksonville | Br, C, O |
| Kewanee | C |
| North Chicago | Gr, C |
| Oak Park | C |
| River Forest | C |
| Robinson | Br |
| Rockford | C, Bi |
| **Indiana** | |
| Crawfordsville | Br, Gr, C |
| Gary | Br, C |
| Hammond | C, Br |
| Indianapolis | C |
| Lafayette | C, Cb, Br |
| La Porte | E |
| Mishawaka | Br, C |
| Richmond | C, Co |
| South Bend | Br, C |
| **Iowa** | |
| Ames | C |
| Boone | E |
| Cedar Rapids | C |
| Centerville | Br, C |
| Clear Lake | C |
| Clinton | C |
| Creston | Br, C |
| Davenport | C |
| Fort Dodge | C, Br |
| Keokuk | C, Br |
| Marshalltown | Br, C |
| Mason City | C |
| Muscatine | Br, C |
| Newton | C |
| Ottumwa | Br, C |
| Sioux City | C |
| Waterloo | Br, C |
| Webster City | Br |
| **Kansas** | |
| Atchison | C |
| Coffeyville | Br, C |
| Emporia | C, Br |
| Galena | C |
| Hutchinson | C, Ac |
| Iola | Br, C |
| Kansas City | Br, C |
| Manhattan | C |
| Topeka | C |
| Wichita | C |
| **Kentucky** | |
| Ashland | Br, C |
| Covington | C, Br, M, Ac |
| Louisville | C |
| **Louisiana** | |
| New Orleans | E |
| **Maine** | |
| Bangor | Ta |
| Portland | Pe |
| Presque Isle | Gr |
| **Maryland** | |
| Baltimore | C |
| Cumberland | C, Co |
| **Massachusetts** | |
| Boston | S, Ac, G |
| Chicopee | Gr |
| Lawrence | G |
| Medford | C, Bi |
| New Bedford | C |
| Worcester | G, C |
| **Michigan** | |
| Dearborn | C |
| Detroit | C |
| Flint | S, Br |
| Grand Rapids | C |
| Hastings | C |
| Kingsford | Gr |
| Lansing | C, Br |
| Niles | C, Br |
| Pontiac | C, Br |
| Port Huron | C |
| Saginaw | A, Br, C |
| South Haven | C |
| Wyandotte | C |
| **Minnesota** | |
| Duluth | Sb, C, Gr |
| Faribault | C |
| International Falls | C |
| Rochester | Br, Wb, A |
| St. Paul | C, Pl |
| **Mississippi** | |
| Hattiesburg | C |
| **Missouri** | |
| Higginsville | C |
| Jefferson City | C, Pe |
| Kansas City | C, Br |
| Maryville | Br |
| Nevada | Ch |
| St. Charles | C, A |
| St. Louis | Br, C |
| West Plains | C |
| **Montana** | |
| Bozeman | C, B |
| Great Falls | C |
| Livingston | C |
| Miles City | C |
| Missoula | C, O, Gr |
| **Nebraska** | |
| Fairbury | Cr |
| Grand Island | C |
| Hastings | C, Br |
| Lincoln | C, Br |
| **Nevada** | |
| Reno | C |
| **New Hampshire** | |
| Concord | Gr |
| **New Jersey** | |
| Camden | C |
| Fair Lawn | C |
| Newark | C |
| New Brunswick | C |
| Plainfield | C |
| Princeton | O |
| Ramsey | Gr |
| **New York** | |
| Amsterdam | Bi |
| Auburn | Br |
| Binghamton | C, A |
| Bronxville | Pe |
| Buffalo | E |
| Elmira Heights | Pe |
| Endicott | C |
| Little Falls | Br, C |
| Lockport | C |
| Niagara Falls | C |
| N. Tonawanda | C |
| Olean | Br, C, Ac |
| Oswego | C |
| Port Chester | M |
| Queens, N. Y. C. | Ac |
| Rochester | A, M, Sb |
| Rome | W, O, Gr |
| Salamanca | Br, C |
| Schenectady | C, Gr, Bi |
| Utica | Bi |
| **North Carolina** | |
| Henderson | M |
| Shelby | C |
| Statesville | C |
| **North Dakota** | |
| Dickinson | C |
| Fargo | B, Br, C |
| **Ohio** | |
| Akron | Br, C |
| Alliance | Br, C |
| Athens | Br |
| Bucyrus | Br, C |
| Cadiz | C |
| Canton | Br |
| Cincinnati | Br, G |
| Cleveland Heights | E |
| Columbus | C |
| Dayton | C, Cb |
| Hamilton | C, Ac |
| Lakewood | C |
| Lancaster | Br, C |
| Lebanon | Cb, C |
| Lorain | C |
| Mansfield | E |
| Massillon | Br, A, Ac |
| Middletown | C, Br, Gr, O |
| Newark | Br, C |
| Sidney | C, Gr, O |
| Springfield | C |
| Warren | Br, C, A |
| **Oklahoma** | |
| Chickasha | C |
| Oklahoma City | C, Br |
| Perry | C, Br |
| Ponca City | C |
| Tulsa | C, Br |
| **Oregon** | |
| Oregon City | C, Ac |
| Portland | C |
| **Pennsylvania** | |
| Allentown | Br, C, Pe |
| Ashland | Pe |
| Beaver Falls | C, Br |
| Bradford | Br, C |
| Clairton | As |
| Easton | E |
| Edgewood Boro | Br |
| Edwardsville | Gr, O |
| Ellwood City | Br, C |
| Erie | C |
| Ford City | C |
| Greenville | Br, C |
| Harrisburg | C |
| Hazleton | E |
| Mt. Carmel | Br |
| New Brighton | Bi |
| Oil City | C |
| Philadelphia | C |
| Phoenixville | Ci, O |
| Pittsburgh | A, Br, St, C |
| Punxsutawney | Bi |
| Reading | C |
| Scranton | A |
| Swarthmore | Ci |
| Weatherly | Ta |
| W. Homestead | Br |
| W. Reading | C |
| Wilkinsburg | C |
| **Rhode Island** | |
| Newport | Cb |
| **South Carolina** | |
| Charleston | G, Cb |
| Greenville | C |
| **South Dakota** | |
| Lead | C |
| Sioux Falls | C |
| Watertown | C |
| **Tennessee** | |
| Knoxville | E |
| Maryville | C, M |
| Winchester | M |
| **Texas** | |
| Austin | C, A |
| Ballinger | Cal |
| Breckenridge | C |
| Dallas | C |
| Galveston | Br, C, Ms |
| Kilgore | C |
| Longview | Gr, O |
| Pampa | C |
| Paris | C |
| Quanah | C |
| San Antonio | C, Br |
| Sherman | C |
| Wichita Falls | C |
| **Utah** | |
| Logan | C |
| **Vermont** | |
| Burlington | A |
| Montpelier | C, M, Gr |
| **Virginia** | |
| Fredericksburg | C |
| Hopewell | C |
| Richmond | C |
| **Washington** | |
| Aberdeen | C |
| Auburn | C |
| Bellingham | C |
| Everett | C |
| Hoquiam | C |
| Seattle | C |
| Spokane | C, Bl |
| Tacoma | C |
| Wenatchee | C |
| **West Virginia** | |
| Bluefield | C |
| Follansbee | C |
| Morgantown | C, Br. |
| **Wisconsin** | |
| Antigo | C |
| Eau Claire | Br, C |
| Fond du Lac | C |
| Fort Atkinson | C |
| Janesville | C |
| Kenosha | Br, C |
| La Crosse | C |
| Milwaukee | C |
| Oshkosh | C, Br |
| Racine | C |
| Superior | C |
| Watertown | Br, C |
| Waukesha | C |

*V-Type Truck Plow*—Sizes for light and heavy duty trucks. Pointed to break heavy drifts, deeply curved to roll snow up and out, without clouding windshield. A second model with less curvature and heavily reinforced is preferred by many state, county, and municipal engineers.



*V-Type Motor Grader*—is equipped with sharp cutting nose to pierce stubborn snow and throw it with a rolling motion to either side. The deep blade with marked curvature displaces high snow in a hurry.

*One-Way Type*—Tapered and deeply curved to pick up, "spiral" and throw the snow. This plow can be worked at the highest operating speeds. Handles a large amount of snow quickly. Curvature prevents snow from clouding windshield or clogging radiator. Blades supplied with fixed angle, adjustable tilt, or with adjustable blade angle and fixed tilt.

*Reversible Type*—A straight blade, with less curvature, to push snow to one side or the other. It is ideal for use in heavy slush or where snow is comparatively shallow. Equipped with a circle, this blade can be set straight across truck or at any desired angle.

# You'll soon be fighting SNOW again

## CHECK NOW ON THE SPECIAL FEATURES IN A-W PLOWS

In only a short time snow will be blocking traffic. Be prepared to keep your highways clear at all times and eliminate the frantic calls from citizens who fear they will be cut off from medical aid and food supplies.

Buy your snow plows now! Avoid the uncertainties that come from placing late emergency orders.

Austin-Western offers a full line of Tapered One-Way, V Type, and Reversible Type Plows to be mounted on light or heavy trucks.

In all these types the plows are designed with the correct curvature to give complete snow removal with the minimum of power. Other Austin-Western features are the special design which permits the plow to be attached or removed from motive equipment in the shortest possible time. Push frames are designed to protect both the plow and the motor vehicle. Safety releases protect equipment from operating damage and break downs. Plows are lifted or lowered by hydraulic pump located within the truck cab.

**THE AUSTIN-WESTERN ROAD MACHINERY CO.**

**AURORA, ILL.**

**THE AUSTIN-WESTERN ROAD MACHINERY CO.**
**1802 Barrows Street, Aurora, Ill.**

☐ Send a salesman.
Tell me more about the:

☐ Snow Plows
☐ Crushing and Screening Plants
☐ Gravel Washing Plants
☐ Motor Grader
☐ Roll-A-Plane
☐ Blade Grader
☐ Bituminous Distributors
☐ 5-Yard Scraper
☐ 12-Yard Scraper
☐ Trail Cars
☐ Shovels and Cranes
☐ Elevating Graders
☐ Motor Sweeper

AP29

*Name*.....

*Address*.....

*City*..... *State*.....

# Austin-Western

# More About Sewer Connections

## *Diplomacy, Salesmanship, Education, Required in Such a Program*

IN every town or section of town there will be many persons who will connect to the sewer as soon as it is made available to them. Also, there will be many who for one reason or another will delay connecting to it. To make sure that all who have the sewer available to them connect to it, most cities have ordinances which require these places to connect within a limited time after the sewer becomes available.

Dallas, Texas, has such an ordinance, which states that any property upon which there is a building, any portion of which property is within 50 feet of the sewer, shall be connected to the sewer within 30 days after the owner, agent, or occupant has been notified to do so by the City Engineer. All the work of notification, however, has fallen to the lot of the Health Department. This ordinance further provides a penalty for failing to connect, and each day after the 30-day period is a separate offense.

### *Owners and Investors*

On reading this, you will think, "Why is he talking so much about sewer connections? Why aren't the notices sent, and the property reinspected at the end of 30 days, and if it is not connected, why not file charges and let the court handle it?" The problem is much more complicated than it seems at first. The sections of a city in which sewers are available but not used are the poorer sections where there are several different classes of persons to deal with. Among these are: (1) the home owner; (2) the person who has one or two pieces of property but depends on other work for his livelihood; (3) the real estate man who depends wholly upon the income from these houses for his living.

The home owners in general are the persons with whom the least difficulty is experienced in obtaining sewer connections, because they themselves benefit from the improvement. All the so-called home owners, however, are not actually owners. Some have made small down payments and are making small payments each month on their places. Their income is ordinarily such that if the burden of a sewer connection is added it would be ownership suicide. Others actually own the property but are not working or are on relief, or making such a small income that for them it is almost impossible to put out the money necessary for the connection.

Then we have the real estate men, both large and small, whose living depends partly or wholly on the rent obtained from their property. They will hesitate to spend any money on their property from which they cannot realize a return.

### *Who Can Handle These People?*

We have seen the type of person to be dealt with, but who should be employed to handle such a program? The success of any sewer connection program rests in large part on the person who gives the sewer connection notices.

There is the bullying or threatening type. This man is impressed with his own importance and seems to derive pleasure from taking persons to court on the least provocation. He arouses the antagonism of those with whom he is dealing, and consequently gets only the sewer connections which can be forced.

Then there is the lazy, indolent or care-free type who serves the notices and reinspects on the date set. If the persons notified have connected, all well and good, but if they have not, he marks the time up and goes on without determining why the connection has not been made. If he comes across a person who is hard to deal with, he takes the path of least resistance. If he finds it necessary to go to court, his cases are badly prepared and in most instances are dismissed for lack of evidence. This man accomplishes very little for the department or for himself.

Then there is the aggressive, salesman type of inspector. This man is interested in his work and attempts to sell the idea of sewer connections to those whom he has notified. He handles each person as though he was trying to sell him a thousand-dollar automobile for which he will receive a fat commission.

This type of man not only studies his code or ordinances, but familiarizes himself with the methods by which the individual can finance the improvement, and the benefits to be derived from it, in health and in actual monetary return to the investor. He is an educator as well as a salesman. He will pick out certain influential persons in each district and educate them on sewer connections. Then in the majority of cases the small home owners will follow this leadership.

### *Success in Dallas, Texas*

To show the benefits to be derived from using this type of man in such work, let me state briefly what has been done in Dallas since the first of June, 1936. At this time a clean-up of the area immediately surrounding the Centennial grounds was started. The greater part of this area is Negro property, both home and rent, and white property in the lower brackets of price range. The sewer is available, but many places are unconnected and still use outside toilets of some sort.

Since June, 1936, the work has moved progressively to other sections, and we have obtained about 400 new connections in six months. Some of these connections were obtained several months after the original notice was served. Patience has been our main virtue in dealing with these small home owners, and in many instances we have had to show them how the improvements could be financed.

With the real estate man, we have an entirely different problem. He does not need information as to financing—he probably has the money or knows better than we do how it can be obtained. He must be shown that it means money to him to have the improvements in his houses. If he is

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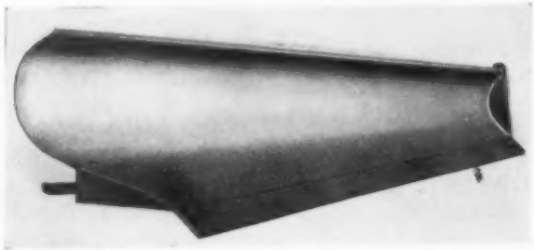

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not approached from this angle, he will feel that he is being forced to spend a large amount of money from which he will receive no return. This is not an infallible method. It is dependent upon economic conditions. The renter must be working, and willing to pay for the improvements which the owner provides.

The success in Dallas has been due in large part to the improvement of business conditions, together with the re-employment of the heads of families, and the fact that it is easier to obtain money for these improvements than it was six months ago.

One of our real estate men has considerable property west of the river. Some of this property has sewer connections, but most of it has not. In fact, we found 25 of this man's houses in a small area which did not have the connections. He had been notified a year or so ago to connect, and was filed on for non-compliance. This case was dismissed when he agreed to connect the houses within a definite period. A short time ago this property was again brought to our notice because of complaint by one of the neighbors, who was a home owner and had her house connected. When the owner was interviewed regarding the complaint, he agreed to fix the dry toilets and to continue to connect the remainder of the houses in accord with the previous agreement. On talking with this man further, we half-way convinced him that there might be some good reason for putting the connections in his houses. He became interested to the extent that he had plumbers and carpenters figure on the price of adding a room to some of the houses and installing plumbing in all of them. After he had obtained these figures, we sat down with him and started figuring. To fix the houses as he planned would necessitate an outlay of $3,500, which he would have to borrow. After taking into account the increase in rent which the property could bring with the improvements, the increase in cost of installation over the period of time he would need to get the improvements made on his present plan, the saving he could make by letting it all in one contract, and deducting the interest he would have to pay on borrowed money, he found that the return the first year would be $1,100. It was not necessary to force this man; in fact, he later thanked one of the men involved in the transaction for opening his eyes.

One of the inspectors took an owner on an inspection of his dry toilets. After visiting the third one, he was more convinced than ever of the need of sewer connections.

A large building and loan company used to fight the Department in its attempt to have the company connect its houses to the sewer. Since the Department has worked with the officers and showed the cash value of sewer connections, the company is connecting all its unconnected property as fast as possible. A few months ago a contract was awarded to one plumbing concern to connect twenty of the company's houses to the sewer.

We have been successful in Dallas in obtaining the aid of mortgage holders in advancing money to buyers for making sewer connections. If the mortgage holder has the money, there is no reason why he should not use it for this purpose, since lending money for interest is his way of making a living. In the first place, the sewer connection adds considerable value to the property above the amount spent, and if the property should return to him, he could sell it for a better figure, and part of the cost of the connection would already have been paid by the mortgagee. If the person buying the place completes the transaction by paying in full, the company has realized a return on its investment. Thus the mortgage holder cannot lose.

Sometimes in spite of every diplomatic effort it is necessary to go to court to secure compliance, as there are some who will buck the program. Then the strong arm of the law has to be brought into action to secure results. The courts should be used only as a last resort. The less the court is used as a clearing ground for such cases, the better will be the cooperation between the department and the owner, and the department will be more successful in obtaining convictions in the cases it does place before the court.

## *Time Extensions*

Many persons are notified to connect to the sewer who are financially unable to do so. These persons could be taken to court as required by ordinance, but this only clutters the court docket, takes the time of the court and department men, and without results. In Dallas such persons are required to sign a statement showing the value of the property, status of taxes and indebtedness, and their salary, before an extension is granted. According to law, no extensions of time can be granted on these notices, but in such cases, if the person were taken to court, the court would have only one recourse, namely, to extend the time; so to avoid all this we have accepted the responsibility of extending the time where it is warranted. These financial statements are kept in the office and periodically checked in the field. When the financial condition of the owner is improved, we require connection. By keeping and checking the statements, we have obtained many connections which would not otherwise have been made.

ACKNOWLEDGMENT.—A portion of a discussion of the topic, "Sewer Connections," by G. M. HATCH, JR., Sanitary Engineer, Department of Public Health, Dallas, Texas, at the 1937 Water Works Short Course, College Station, Texas.

### A Suggestion for Unzoned Communities

**This question was recently addressed by the Commissioners of Hampton Beach Precinct, N. H., to all property owners at the Beach:**

***"Do you approve the establishment of a workable planning and zoning board for Hampton Beach for the purpose of protecting property values?"***

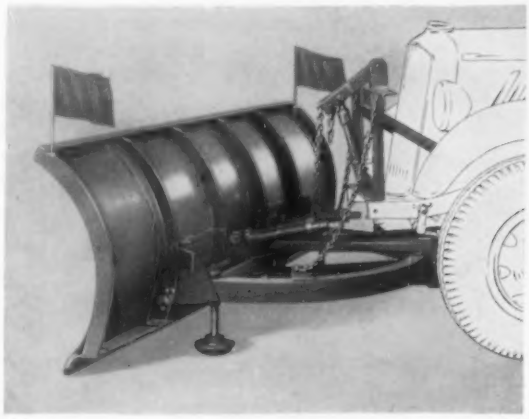
**To that question the reply was overwhelmingly "Yes," 478 property owners approving and only 15 disapproving. This is clearly indicative of the increasing public appreciation of the practical value of planning and zoning.**

**In commenting on this method of community protection, the New Hampshire State Planning and Development Commission observes that:**

**"The benefits of sound community planning are many. The plan, when prepared, provides a definite objective toward which the community may grow. It helps to prevent haphazard and wasteful developments and permits intelligent spending of the public funds on improvements of permanent constructive value.**

**"For those communities in the early stages of development, the plan provides a guide for orderly, intelligent growth. For communities no longer growing, it serves as a stimulus and a reawakening. With its accompanying zoning ordinance, the community plan serves to maintain land values and gives that quality of stability so desirable to those investing money in the development of land and the erection of buildings."**

—From the Biennial Report of the New Hampshire State Planning and Development Commission, 1936-1937. See p. 131 for review of this publication.



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***TEST DATA ON THINWOL**

**Dielectric Strength In Volts per Mil**

Dry Samples.....833

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(7 days soak at 70 C)

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After 96 hr in oxygen bomb at 75 C.....1712

**Actual results from normal factory-run samples—NOT guarantees.*

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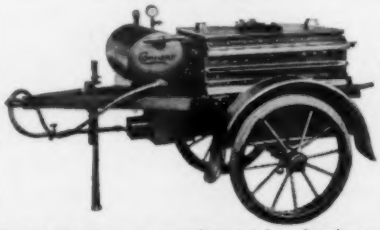

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# Place Names for New Suburbs, Streets and Parks

By HENRY WINSLOW BROOKS
Trustee, Roosevelt Savings Bank of the City of New York

THERE is indicated a considerable expansion of dwelling construction during 1937 and for several years to come. While much of this rebuilding will be urban, the tendency is for people to move from the city centers to the outskirts and to partially developed and newly created sections. This means new suburbs, new streets, new parks, nearly all of which will have to be given names. The suggestion is herewith made to municipal officials, real estate owners, developers of subdivisions, builders and civic organizations to give careful consideration to the selection of the most appropriate names, using taste, common sense, imagination and intelligence.

At first glance, perhaps, the importance of this may not be fully appreciated, but realization comes with thoughtful consideration.

The selection of an attractive name has a direct commercial value. Just as we are consciously or unconsciously affected by first impressions of people, including their names, so we are influenced by the names of places we have never seen, are considering visiting, in which we may be contemplating realty purchases or visiting for the first time. This impression may be favorable or unfavorable, and may somewhat unconsciously direct our contemplated action. Naturally, municipal officials, real estate owners and operators, shopkeepers and citizens generally, wish to attract new residents to the locality; therefore, in accordance with good salesmanship and the best advertising psychology, inviting, distinctive, and easily remembered names should be selected.

Of course, the name is not everything, but it plays its part in attracting new residents and keeping those already there. We easily recollect places with attractive names, and this results in realty activity, whereas others with unfortunate names suffer through ridicule and decreased property values.

## *A Bit of Place-Name History*

A study of the origin of place names is interesting and amusing; some use it practically, others make it a hobby. It is an inviting gateway to local history and biography, to languages, psychology, sociology, and a knowledge of the habits, intelligence and other phases of the life and times of the settlers who applied the names. As we associate the familiar local names with the personages, the historic events, the previous generations of inhabitants, there passes before our eyes in imagination a fascinating pageant, giving to us and our visitors new pride and interest in our home locality.

In the earlier days in America, the names given were largely topographical, such as the Indian names indicating high or rugged hills, swift streams, shallow fords, good or bad fishing and hunting grounds, so that the inhabitants might find the easy way and avoid difficulties and dangers, as well as obtain sustenance on their journeyings of peace or war.

Later, pioneers from Europe gave places the names of their old home towns in England, Scotland, Ireland, Germany, France and Spain, and from these names we today trace the racial composition of the locality.

Still later, the personal names of Europeans, particularly English personages who were friendly to young America, were used as a compliment and expression of appreciation. During and after the War of Independence, American patriotic names were most frequently used. Then came a flood of quaint, uncouth, and ridiculous names given to new settlements as the crude pioneers and woodsmen pushed forward into unsettled regions.

In looking over maps, we see that many cities, towns, squares, parks and streets have been most appropriately named, yet others show ignorance, lack of imagination, repetition without reason. We have witless names, such as Hard Cash, Hog Wallow, Busy, Barefoot; names without reason, such as the numerous classical names in New York State, as Rome, Carthage, Syracuse; hundreds of places named for the President, perhaps because that was easier than thinking up an appropriate name; dull, uninteresting names of inconsequential people temporarily in minor political office, given as a little of political blarney.

Places have been named or renamed because some unimportant person made a gift, as in the case of a New Jersey town which derived its name from a judge who opened up for free distribution some barrels of fine whiskey at the tavern.

From time to time some civic-minded person suggests a change of name for one reason or another. For instance, during the World War, there was considerable agitation for changing the name of Berlin, Conn. While, as a general thing, it is wise to retain the historic names, familiar for years to large numbers of persons, if a place has a name that is not euphonious or is disagreeable or otherwise detrimental, it should by all means be changed. The United States Geographic Board, after careful consideration, is quite properly recommending certain name changes. These changes would have been unnecessary had their originators used good judgment. The same mistakes should not now be made.

## *Ideas to Adopt and Avoid*

To summarize practical suggestions for naming the new suburbs, subdivisions, streets and parks: Nearly every locality has some interesting, beautiful or picturesque natural feature; some fine type of man or woman who has proved a benefactor of the locality; or some dramatic, romantic or historic event that occurred at or near the spot, which would be appropriate for the place name. The use of such names gives character and standing to the

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locality; as well as being a memorial constructive in the lives of subsequent residents.

*The points to bear in mind are:* (1) the name should be original, distinctive, different from that of other places; (2) characteristic of the spot, either descriptive of natural features, associated with an important historic event or personage, expressive of the race or qualities of the populace; (3) clear, euphonious, easily spelled and spoken; (4) easy and pleasant to remember; (5) attractive, interesting, likable, of appeal to the imagination; (6) representative of the good taste, intelligence, high character and dignity of the populace—a name of which every resident may be justly proud. .

*Some of the points to be avoided are:* (1) the use of the same name for avenues, streets and places in the same city or town, since it leads to confusion in locating the building to be visited, causes errors in mail and package deliveries; (2) names that are difficult of spelling and pronunciation or have a similarity to other local names; (3) names that have been frequently used elsewhere, so that one has to stop to think of the particular state or county in which this particular town is located; (4) names that indicate a cheapness or sordidness of locality, or inferiority of people; (5) names that create aversion or ridicule; (6) names of inconsequential people, often difficult to spell or remember; (7) those that have no relation to the topography and no association with local history or biography; (8) names which are affected, "flowery," sentimental or exaggerated; (9) names which are highly inappropriate and unpleasantly stick in the memory.

When you motor about your home town or city or visit other localities, watch the place names and consider them in relation to the above comments. Better place names improve civic conditions and are of economic benefit.

# The Fundamental Significance of Planning

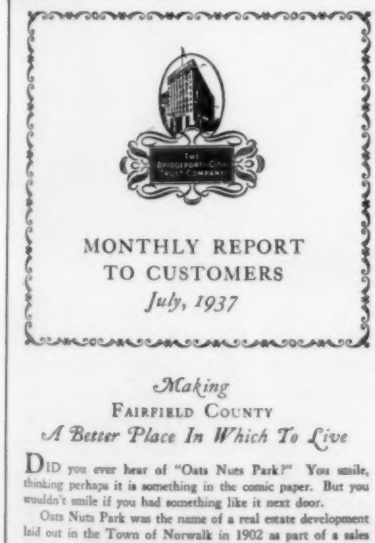
By SIR RAYMOND UNWIN

WHETHER our present social system can develop into something more completely satisfying to the whole nature of man; or whether the great wave of progress on which our civilization has been carried forward so far must be broken against the rocks of difficulty, and mankind must fall back to await a fresh start on a new wave, will depend in no small measure on whether men can learn to apply the art of orderly planning to their life, and to the environment in which that life finds its setting. . . .

That planning is compatible with a full development of individuality seems to follow from the fact that the main value of all cooperation springs from the differences in faculty and equipment of those cooperating. One of man's most notable achievements has been the formation of communities which depend for their life and progress on the extent of the difference in endowment and training of the individuals who compose them, not on the degree of their standardization. Creation of values due to the association or cooperation of individualities which are different is, after all, the essence of all planning or design.

—From a recent address before the Royal Institute of British Architects on the occasion of the presentation to the author of the Royal Gold Metal.

# How an Important Trust Company Aids City Planning



MONTHLY REPORT
TO CUSTOMERS
*July, 1937*

*Making*
FAIRFIELD COUNTY
*A Better Place In Which To Live*

DID you ever hear of "Oats Nuts Park?" You smile, thinking perhaps it is something in the comic paper. But you wouldn't smile if you had something like it next door.

Oats Nuts Park was the name of a real estate development laid out in the Town of Norwalk in 1902 as part of a sales campaign to promote a breakfast food. Lots were given away to the holders of coupons. Naturally, the lots were small. In fact, 750 lots were crowded into a tract of only 23 acres. None could have been larger than 20 by 60 feet without allowing for streets.

THE BRIDGEPORT-CITY TRUST COMPANY

Such a development, with tiny lots crowding on one another, dead-end streets and little room for landscaping, would if settled be little better than a slums section. *And it might adjoin your country home.* In fact, the site of Oats Nuts Park now happens to lie close to the Merritt Parkway route in a section where fine suburban homes and country estates should develop in the next few years.

Happily, nothing came of Oats Nuts Park. But all over Fairfield County today there are real estate developments laid out in past years without much regard for the features which help insure a pleasant and desirable residential environment and enhance rather than depress property values.

"There ought to be a law." Well, at last there is. The Legislature has just passed an act giving Fairfield County town planning commissions power to regulate the size of lots in subdivisions. The Fairfield County Planning Association sponsored this act. Its passage is only another of a long list of useful services which this Association has rendered since its founding in 1923 under the leadership of the late Daniel S. Sanford of Redding.

"Planning" is a word much used these days. The planning done by the Fairfield County Planning Association is that of a group of public-spirited men and women who realize that *every piece of land has its best use.* Oats Nuts Park shows what can happen if there is no protection of property against exploitation by speculative building.

Zoning for both business and residential purposes works for the best interests of each. Sections with single-family houses want protection against two-family houses, and these against multiple-family apartments. "Light business" such as retail stores fears factories which necessarily create smoke, dust and

MONTHLY REPORT TO CUSTOMERS—JULY 1937

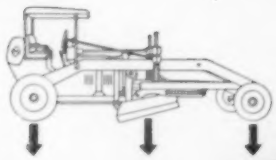
odors. Natural scenic spots deserve to be preserved. Playgrounds, beaches, athletic fields, trails, bridle paths and footpaths, being everybody's business, tend to become nobody's business. Through-traffic arteries threaten bordering residential sections with hot dog wagons, billboards and unsightly gas stations. Those are all matters of community interest which the Fairfield County Planning Association is designed to consider in the interest of the twenty-three towns in the County.

The Directors of the Association, two from each town, meet four times a year. Terms run for two years; half of the Directors are elected each year. The technical staff of the Association consists of six engineers, draftsmen and statisticians. Recently the Association has benefitted by assistance from the Works Progress Administration, but from the first the Association has depended primarily on voluntary subscriptions ranging from $5 a year upward. Such support, continued year after year, has made possible work which has attracted nation-wide attention among agencies seeking to solve similar problems in other communities.

Today there is undoubtedly a growing conviction among American cities that the best kind of help is self-help; that the best planning for a community is that provided within the community by those who know its needs and envision its future for themselves and their children.

For nearly fifteen years now the Fairfield County Planning Association has been making expert assistance available to every town in the County. Far from being completed, its work has probably just begun in view of the likelihood that Fairfield County can expect to have a population of more than 600,000 by 1980, which means an influx of 250,000 new residents, 60,000 new families.

Reproduced above (in reduced size) are three pages of the "Monthly Report to Customers" of the Bridgeport-City Trust Co., of Bridgeport, Conn., for July, 1937. Another page gave the condensed statement of condition of the Trust Company as of June 30, showing assets of nearly $30,000,000



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No motor grader can take full advantage of its engine power or its traction—unless its BALANCE is right. Correct balance is absolutely essential to EFFECTIVE BLADE PRESSURE ... and blade pressure is essential to smooth, even work.

There are several reasons why Allis-Chalmers Speed Patrols convert a higher percentage of their weight into blade pressure than any other motor graders. Center mounting of the engine is important. Instead of prying upward AGAINST the blade ... the Speed Patrol engine's weight pushes downward WITH the blade—and in that way INCREASES blade pressure. Center engine mounting is the only design that distributes weight evenly between front end, blade and rear end.

Long wheel base and extra long blade base put the Speed Patrol's moldboard farther back from its front axle—which also directs a greater percentage of the machine's weight into the blade. Greater front-end weight holds the Speed Patrol to the road, assures more effective work, and prevents side-slipping on heavy cuts. Only the correct weight distribution and balanced design of Allis-Chalmers Speed Patrols will give you the powerful, ground-gripping traction, tremendous blade pressures and positive steering you want and need. Get the facts!

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# Stream Pollution Checked by Cooperative Program

*Sealing of Abandoned Coal Mines Brings Noticeable Results*

ABANDONED coal mines in the Ohio River basin have for years discharged acid-polluted waters into streams tributary to the Ohio. As a result, many of these streams have been damaged to a degree that their waters will not sustain aquatic life and are rendered unfit for human consumption or industrial uses. Sporadic efforts to do something about the pollution menace marked such undertakings for many years, and not until lately has an effective concerted program been placed in operation. Now, however, with Federal and state authorities cooperating, some progress is beginning to be made. Hampered in the past by the heavy cost of the work of sealing the abandoned mines against discharge of sulphuric acid laden waters, authorities found that the inception of the Federal Works Program afforded the opportunity to obtain necessary funds for a broad-scale undertaking. WPA funds are now being expended in the hire of hundreds of workmen and the purchase of some of the essential materials for the mine-sealing program. Cooperating with the WPA are the U. S. Public Health Service, the U. S. Bureau of Mines, the Corps of Engineers, U. S. A., and the health and conservation departments of the various states in which the mine-sealing program is under way.

## *Tackling an Alarming Situation*

The principal operations in the mine-sealing program are being conducted in Ohio, West Virginia, Pennsylvania and Kentucky, where more than 13,500 abandoned mines have been polluting streams with the discharge of sulphuric acid waters. The extent to which work has been expanded is revealed in recent reports from state WPA administrators and public health officials. These reports reveal that over 47,000 openings have been sealed in 1,527 abandoned coal mines in these four states. As a result, sulphuric acid pollution of streams flowing into the Ohio River basin has been reduced materially.

The amount of drainage, with its enormous sulphuric acid content, had increased annually at an alarming rate, causing more and more property damage. Army engineers emphasized the danger of this river pollution after a study made in 1925. The acid, they reported, was formed by the action of air on water flowing over iron pyrites, marcasite, and other minerals contained in the coal beds. They found that if the mines were sealed against the entry of air, little sulphuric acid could be formed.

The legislatures of the various states involved did not appropriate funds for this highly necessary and expensive project. Work was first begun under the CWA, continued under the FERA, and now under the WPA is progressing so rapidly that benefits already have been noted. It is indicated that when the program is completed, the larger percentage of the acid discharge will have been eliminated.

## *Organization in 1933*

Hugh S. Cummings, then Surgeon General of the United States Public Health Service, called a meeting in 1933 of the heads of the health departments of the states affected. As a result, each state, in cooperation with the Federal Works Program, sponsored a project for the sealing of the abandoned coal mines within its borders, with Ohio, Pennsylvania, Kentucky, and West Virginia leading in the work.

After approval of their projects, the state health officers organized their staffs under the supervision of the United States Public Health Service, and a census was taken of the abandoned coal mines. Many of these had never been recorded on any map. It was impossible to estimate the number of openings in each mine without a thorough examination. It was known, however, that the number of openings in each mine varied from one to as many as 500 in others.

## *The Method of Operation*

As a method of operation it was determined that the abandoned coal beds were to be sealed against the entry of air, thus preventing oxidation as the water flowing through the mine passed over the iron pyrites and marcasite which resulted in the sulphuric acid discharge. It was not a simple process, because experiments have demonstrated the fact that these mines must not be completely sealed against the escape of water. Where that has been done, new openings were made by the slow combustion going on within the mine. Consequently, it was necessary to construct a trap that would permit the water to flow off, and yet seal the mine against the entrance of air.

## *Work in Keystone State*

The greatest activity in the mine-sealing projects has taken place in Pennsylvania, where work has been carried on in 22 counties. Approximately $1,500,000 has been allotted for the projects, and 1,700 men are continuously employed. The latest figures reveal that 208 mines have been completely sealed, and work continues on 139 others. The closures already made number 30,000.

The success of the methods used in Pennsylvania is proved by the results. The Evans mine in Beaver County was draining daily 75,000 gallons of water which contained 300 pounds of acid. After sealing, the drainage dropped to 10,000 gallons, the acid content of which was only 85 pounds. Similarly, in Cambria County, the Commerce No. 4 mine was draining daily 105,000 gallons of water containing 3,000 pounds of acid. The present fig-

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ures are 32,000 gallons containing only 200 pounds of acid. These two examples are typical of tests made throughout the state. Careful check of the work is constantly made to assure the success of the project. Samples of water, before and after sealing, are sent to the Department of Health laboratory for analysis. If the acid content of a mine does not show material reduction after having been sealed, another survey is made of the outcrop area, and any cave holes or openings that escaped attention previously are sealed.

## *Ohio Moves Forward*

In Ohio, results have been encouraging. B. F. Hatch, of the State Board of Health, estimates that the streams of the Ohio watershed were pouring more than 3 million pounds of sulphuric acid into the Ohio every day prior to the completion of mine-sealing projects which, by October 1, 1936, had eliminated one-eighth of the pollution. His estimate is based on tests made in seven streams in the coal-mining area.

Ohio has about 4,500 abandoned coal mines in 24 counties, of which 570 have been sealed. This involved the closing of approximately 13,000 openings. Earth fills were customarily used for the sealings, with the usual masonry trap to permit the escape of water. It was reported by Mr. Hatch that in Athens, Hocking, and Meigs Counties, minnows and vegetation had reappeared in the streams and that cattle had begun to drink from them. Numerous communities reported to him that their difficulties in obtaining supplies of pure water appeared to be at an end.

## *Benefits in West Virginia*

According to E. S. Tisdale, State Sanitary Engineer, the mine survey in West Virginia revealed 2,212 mines, of which 613 were active, 214 were marginal, and 1,368 were abandoned. More than 500 of the abandoned mines had been sealed by November 1, 1936, by approximately 750 workmen, who closed over 3,600 openings. Mr. Tisdale estimates that it will require two more years to complete the work of sealing all the abandoned mines. Sealing these mines has reduced the daily acid load from 467,000 pounds of concentrated acid to 102,000 pounds daily. More than 1,000 miles of streams on the watersheds of Potomac, Cheat, Tygart, West Fork, Monongahela, Little Kanawha, Kanawha, Guyan and Tug Rivers are benefiting from the reduced acid load.

Observations on the Cheat River illustrate the improved conditions. In the drouth of 1930, when the Kingwood, W. Va., water supply, which was derived from springs, dried up, it was found that the water of the Cheat River had a high acid content rendering it unfit for use. In the drouth of 1936, the reduced acidity of this same river water made its use possible.

Industrial use of the water has also been improved, as demonstrated by the Chesapeake and Ohio Railway at its water-treatment plants in the Logan area on Whitman Creek. The same railway reported definite lessening of the acid in Ten Mile Creek in Harrison County near Clarksburg. Noting the practical success of this work, mining companies have lent their cooperation. This is very important because it means that we will not have these conditions to combat from mines abandoned in the future.

Major H. W. Shawhan, State Conservation Commissioner for West Virginia, reports that recreation and fishing benefits have already been observed. He cites this example: Beaver Creek, near Davis in Tucker County, is a trout stream in which trout were caught six miles farther upstream this year than for the last twenty years. Fairmont sportsmen also report a considerable increase in the fish life of Tygart River.

It is predicted by state officials that navigation on the Monongahela, the Kanawha, and the Ohio Rivers will gain definite financial benefits by the lowering of the rate of deterioration on parts of federally owned locks and dams, as well as on the steel barges which ply these rivers. In addition, lands bordering these waters are now becoming more valuable for agricultural and grazing purposes since a great deal of the acid discharge has been eliminated.

West Virginia mines that have been sealed are visited every three months for sampling and measurement of flow, so that the reduction in acid load of each sealed mine may be ascertained. If at any time the load tends to increase, maintenance crews are sent to the mine to check what has happened. If a new hole has opened up, it is immediately closed, thereby shutting off the acid discharge.

## *Progress in Kentucky*

A. T. McCormack, State Health Commissioner, reports that 110 mines have already been sealed in Kentucky, entailing about 633 closures. Seventy more mines are now in the process of being sealed, and he estimates that there are 4,100 more mines that should be sealed. Work is going on in 24 counties, while in 14 others there is no available labor. Approximately 50,000 pounds of acid waste per day has been eliminated because of the work done up to this time.

The Kentucky Department of Health reports that exceptional cooperation and support have been received from mine operators and surface owners, and that a substantial percentage of materials used in the sealing of the mines has been contributed by them.

## *Industrial Waste Serious*

Maryland, Tennessee, Indiana, and Alabama have also received allocations for the elimination of stream pollution, although in some of these states the problem of elimination resulting from abandoned coal mines is not as acute as that caused by other factors, such as waste discharged from industrial plants.

**Chambers of Commerce Not Exempt from Social Security Taxes**

*Nacos News* reports that Commissioner of Internal Revenue Guy T. Helvering has advised Chambers of Commerce and Boards of Trade to make immediate tax returns as required under the provisions of Titles VIII and IX of the Social Security Act. Organizations such as these which have not paid taxes are in the delinquent class, against whom drastic penalties are now accruing.

Commissioner Helvering pointed out that every person employed by Chambers of Commerce and Boards of Trade came under the provisions of Title VIII, which imposes an income tax on the wages of every taxable individual and an excise tax on the payroll of every employer of one or more. This tax is payable monthly at the office of the Collector of Internal Revenue. The present rate for employer and employee alike is one per cent of the taxable wages paid and received.

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# Procedure for Securing Loans and Grants Under U. S. Housing Act of 1937

*By* COLEMAN WOODBURY
Director, National Association of Housing Officials

THE United States Housing Act of 1937, née the Wagner-Steagall Bill, is not a simple measure. Its inherent complexity has been aggravated at one or two important points by none too clear language inserted by struggling Congressional committees during the last few days of the session just closed. Under these circumstances, it is a rash if not a foolhardy man who will try to advise city officials on the major lines of procedure before the Authority has been set up and vital administrative rulings and interpretations have been made.

Nevertheless, I am not trying to persuade the reader to pass over this article. Certain broad principles of procedure and housing theory are clearly and unmistakably laid down in the statute itself. Some of these are directly opposed to the procedures made possible by the inclusion of a few phrases about housing in the emergency legislation of four or five years ago. It is absolutely essential that these new principles and methods be clearly understood before local officials tackle the details of application forms and subsidy commitments.

In further extenuation of my rashness, I can plead that I have followed closely the evolution of the Wagner-Steagall Act during the last three years. My mind is also relieved by the fact that the Association for which I work will very shortly have an expert consultant service available to cities and local housing authorities on the details of procedure and method under the Act.

Elsewhere in this issue of THE AMERICAN CITY [page 5] is a summary of the Housing Act with brief comments on some of its major provisions. Without attempting any systematic digest of the measure here, I should like to advance a few concrete suggestions for officials and others interested in its practical possibilities:

## 1.

*Be sure your community is within the jurisdiction of a public housing agency.* "Public housing agency" as defined in the Act is "any state, county, municipality, or other governmental entity or public body . . . which is authorized to engage in the development or administration of low-rent housing or slum clearance." A very few cities may be able to build and operate housing under powers granted in home rule charters. The great majority of cities, however, do not have such powers. In recent years acts have been passed in 30 states* authorizing the creation of specialized municipal corporations usually called "housing authorities" in cities and/or counties (one is for a state authority). Most of these acts give broad powers to the local authorities for the production, ownership, and management of housing for low-income families.

If a housing authority has not been established in your locality, you should get a copy of the state enabling act and see that such a body is properly set up at once. If your state does not have the necessary enabling act, you ought to get together with representatives of other communities in the state and see what can be done as soon as possible in obtaining such legislation.

Until an adequately empowered, properly created state or local housing authority is ready to go to work in your locality, there is absolutely no way in which it can benefit directly from the Wagner-Steagall Act. Under the new Act the United States Housing Authority cannot buy a single parcel of land nor build a single house. All provisions for demonstration projects and for loans to limited-dividend and cooperative housing agencies were stricken out of the bill while it was before Congress.

## 2.

*Be sure that, under your authority enabling act, local or state governments can make contributions to housing subsidies in cash tax remissions or tax exemptions.* Although theoretically it is possible under the Federal Act for a housing project to be built by a local authority aided by 100 per cent loan from the U. S. Housing Authority without any subsidy by either agency, as a practical matter such projects would meet the needs of low-income families† only under very unusual circumstances. An overwhelming proportion of the projects will need subsidies. Under the plan of *capital* subsidies outlined in the Act the local or state government must provide a grant equal to 20 per cent of the cost of a project. Under the plan of *annual* subsidies, which undoubtedly will be the prevailing procedure under the measure, a local or state government must agree to make an annual contribution equal to 20 per cent of "the annual contributions herein provided." One of the first jobs of the U. S. Housing Authority must be to decide whether this phrase means that the local annual contribution must be 20 per cent of the Federal contribution or 20 per cent of the total of local and Federal contributions.

In any event, state or local governments must be able to commit themselves to annual contributions before any Federal funds can be advanced for construction requiring Federal annual subsidies. The statute specifies that local annual contributions may be in cash, tax remissions, general or special, or tax exemptions.

## 3.

*Make sure your local authority is, or shortly will be, adequately financed.* Through your local housing author-

* These states are: Alabama, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Montana, Nebraska, New Jersey, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, West Virginia, Wisconsin and Vermont.

† Defined in the Act as "families who are in the lowest income group and who cannot afford to pay enough to cause private enterprise in their locality or metropolitan area to build an adequate supply of decent, safe, and sanitary dwellings for their use."

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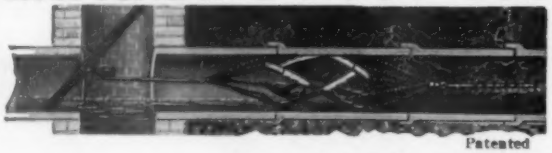

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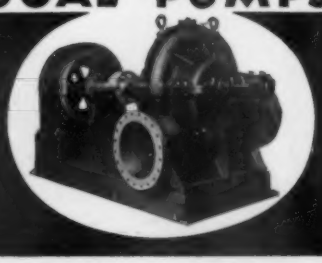

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ity your community is going to undertake a complex administrative job and an important social responsibility. The undertaking will be a failure unless the authority has trained and experienced employees for planning, building, and managing the projects. Unless funds are available for adequate salaries, office equipment and expenses, your authority won't be able to do a decent job and in all probability won't be able to make a sufficient showing to obtain a Federal loan or grant. Housing authorities can no longer be the poor relations of the local governmental family to be nourished on pious words, voluntary services, and eternally changing WPA projects. All these have their place, but unless your local authority gets more substantial support, it isn't going to go very far in developing and carrying out a reasonable housing program for your community.

4.

*Get evidence of the need for low-rent housing in your community.* The first step clearly is to determine in dollars and cents the present upper limit of low-rent housing under the Act's general definition of low-income families quoted above.‡ Once the top limit of low-rent housing under present conditions has been determined, the need for new construction at or below this rental can be shown by figures on shortage, vacancies, overcrowding, and unhealthy and insanitary housing conditions endured in existing properties in these lower rental ranges.

5.

*Compile the record of recent demolition; see municipal officials about present plans for repairing, closing or removing unfit dwellings.* The Act requires that projects subsidized by the U. S. Housing Authority must include demolition, closing, or the compulsory repair of unfit dwellings substantially equal in number to the new family units to be constructed. It is not clear what is meant by the phrase that a "project" shall include demolition or repair. Statements of the advocates of this amendment to the original bill were that all they wanted was the removal of as many old buildings as were built with Federal aid. If this interpretation can be put on the language of the Act, police power demolition by building or sanitary officials, or voluntary demolition by WPA, presumably could be counted. Over just what period the demolition may take place remains to be determined also.

Fortunately the bill allows the U. S. Housing Authority to defer this requirement of demolition or compulsory repair under conditions of acute shortage. Thus, the recommendation above to collect information on vacancy percentages and shortage in the low-rental ranges has a double application.

6.

*Decide where new low-rent housing should be built.* An active city planning commission, if you have one, ought to be an invaluable aid to the housing authority in this step. Don't make the mistake of not looking beyond the first project or assuming that new housing necessarily should be built where the present slums are. Residential districts of all kinds should be planned in relation to employment centers, educational and recreational facilities, transit lines, and shopping centers. The characteristics and habits of life of the expected tenants should also be taken into consideration. Past changes and probable future trends in all these factors should be measured or estimated as intelligently as possible.

7.

*Determine approximately the amount, type and cost of the housing to be built.* It would be unwise to spend time and money on detailed plans and estimates before the U. S. Housing Authority has determined upon at least the form of its applications for loans and grants. Preliminary estimates, however, are necessary not only as a basis for later submissions to the Federal agency but also as a check on the plans of the local authority itself. From these preliminary estimates the amount of subsidy needed to reach the demonstrated housing need can be reckoned. From this figure of total subsidy the state or the local government's contribution also can be approximated. The feasibility of the entire plan can thus be checked. Remember that the Act limits the Federal Authority's annual subsidy to the annual yield at the going Federal rate of interest plus 1 per cent upon the development cost of the housing project.

8.

*Be sure local leaders, including officials, understand the case for low-rent housing, the ABC's of the Wagner-Steagall Act, and the need for local subsidies and working funds.* This is listed almost last, but it is by no means least. In fact, to accomplish it, housing advocates or officials would have to be fairly well versed in the matters covered by the other suggestions. Local education and financial support are now imperative. Local agencies and individuals can no longer wait upon Federal demonstration programs or other outside means for awakening and directing local support.

9.

*Help your local authority to see its job in some perspective; don't become "project crazy."* All local housing authorities have certain research, educative, and directive functions that are essential to a well-rounded housing program. They can find housing facts that are not known or are only dimly realized. They can see that these facts and sensible interpretations of them reach officials and citizens in clear, direct English. They can encourage, and if necessary, revivify local city planning. They can help to strengthen and modernize local ordinances affecting building, zoning, subdivision control, sanitation, and demolition. They can emphasize the need for effective administration of these measures. All these and other similar undertakings can be carried on concurrently with the planning and building of low-rent dwellings. In the long run they will repay many times the expenditure of time and money required.

Let me emphasize that at the present moment no one can say, with respect to the Housing Act, "This do and ye are saved." Certainly, however, any community that vigorously and intelligently follows the suggestions above will be in the front rank of prospects when the doors are opened for business under the loan and grant sections of the Housing Act. And even more important, such a community will have an excellent start toward a steady, progressive housing program that in time will remove the marks of the housing dark ages and show at least some of the possibilities of a decent environment for modern urban life.

‡ Low-rent housing is simply "decent, safe and sanitary dwellings within the financial reach of families of low income. . . ."

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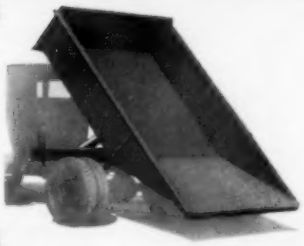

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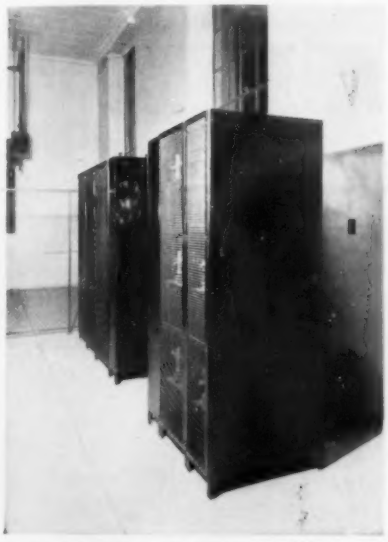
AUBURN, IND.—The question "Does power factor correction pay?" has confronted at one time or another practically every city which purchases power with the so-called power factor penalty clause in the rate schedule. These rates are always so set up that they increase the power cost to a customer with low power factor and give a corresponding reduction in rates to those which will maintain the power factor somewhere near unity.

Very often the power superintendent is not absolutely certain that the saving he can make with power factor corrective equipment will justify the investment required, and he may sometimes feel that most of the savings claimed exist only in the mind of the salesman who at that moment may be trying to interest him in putting in equipment to improve the power factor.



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This problem has been definitely solved for the city of Auburn, Ind., which in the spring of 1935 faced the necessity of reducing power cost, owing to constant demand of consumers for lower rates. The city purchased power wholesale under a rate schedule which gives it a penalty on poor power factor due to a kva demand chart, but, as the kva demand is also used in figuring the energy cost, it is very important that the power factor be kept as near unity as possible, since this will reduce both the demand and energy charges.

The city had a demand of approximately 1,000 kva at 2,300 volts, and had maintained a power factor of about 74 per cent. It was decided to install capacitors to improve this condition, and in order to get as flexible an arrangement as possible, two units, 600- and 300-kva rack type capacitors, were installed so as to put 900, 600 or 300 kva across the line, depending on the power factor and load condition. The cost of this equipment, including all installation charges, was $6,500.

From February, 1934, to March, 1935, the city purchased 4,480,000 kw at a net cost of $65,364, or 1.46 cents per kw.

The following full year with capacitors on the line maintaining 100 per cent P. F., the city purchased 5,167,150 kw at a net cost of $68,267, or 1.32 cents per kw. This is an actual saving of 0.14-cent per kwh, or a total saving for one year of $7,234 on the amount of power purchased.

This saving of $7,234 in one year on an investment of $6,500 convinced the city that power factor correction is one of the best dividend-paying investments it ever made.

C. L. ROMEISER and P. VAN DE BUNT, Respectively, Superintendent of Utilities, City of Auburn, Ind.; and of Westinghouse Electric & Mfg. Co., Fort Wayne, Ind.

### *Solving a Community Swimming Pool Problem*

NEW WILMINGTON, PA.—For years the Borough Council of this town of less than 1,000 inhabitants had been setting aside $500 for the maintenance of a "mud-hole" in a nearby creek for town swimming purposes. Yearly it became less sanitary and more roughly used, until the town fathers began to feel it unsafe for their children and inquired into the possibilities of financing a modern, sanitary pool. In 1931, a group of 30 public-minded citizens formed a swimming association, pledged themselves underwriters of certificates similar to municipal bonds at 6 per cent interest, and floated loans which totaled $10,000. The Community Chest included $1,000 for the same purpose.

Once the initiative was taken by responsible men, New Wilmington as a whole became actively interested in pushing the idea through to completion. Two blocks south of the center of town, a swampy, unsightly piece of ground was leased by the Borough Council to the Swimming Association. The pool was designed gratis; a local contractor permitted the use of his machinery in construction work without cost; and all materials, supplies and fittings were either awarded to the lowest bidder or purchased at cost. All the labor was done by local unemployed men, antedating the WPA scheme of operation.

The pool, 105 feet long, 45 feet wide, and from 1 to 8 feet deep, is surrounded by a 6-foot cement walk, at the outer edge of which is a heavy wire fence. It is equipped with two diving boards. At the north end of the pool is a dressing house, 14 by 42 feet, built of boards used in the concrete forms, and containing dressing rooms for men and women, a small office for the life-guard and caretaker, showers and foot-washes, toilets, and miscellaneous equipment. South of the pool is a four-unit filter system, costing $2,700, which completely filters, every 12 hours, the 170,000 gallons of water (tested three times daily). At the beginning of the season the pool is filled from a 40-foot artesian well, drilled during its construction.

The pool is open from 10 A.M. to 10 P.M. with free swimming and life-saving lessons at specified hours. After dark, huge electric floodlights cover the water

NEW WILMINGTON'S POOL IN OPERATION SHORTLY AFTER ITS OPENING

# Sturdy *in every part*

The large, heavy standpipe and the simple, strong operating mechanism of Kennedy SAFETOP Fire Hydrants assure thoroughgoing reliability and resistance to destructive influences. In addition, if struck by an impact which NO hydrant could resist, the patented Safety Breakable Section protects the major and expensive parts of the hydrant from damage and permits quick, economical repair without excavating or shutting off the water pressure. Firemen find the Kennedy SAFETOP immediately responsive and easy to operate, and water department officials find that SAFETOPS reduce maintenance expense to a negligible item.

***Send for bulletin***

**The Kennedy Valve Mfg. Co., Elmira, N. Y.**

## KENNEDY
## SAFETOP FIRE HYDRANT

REG. U.S. PAT. OFF.

Subaqueous
Pressure
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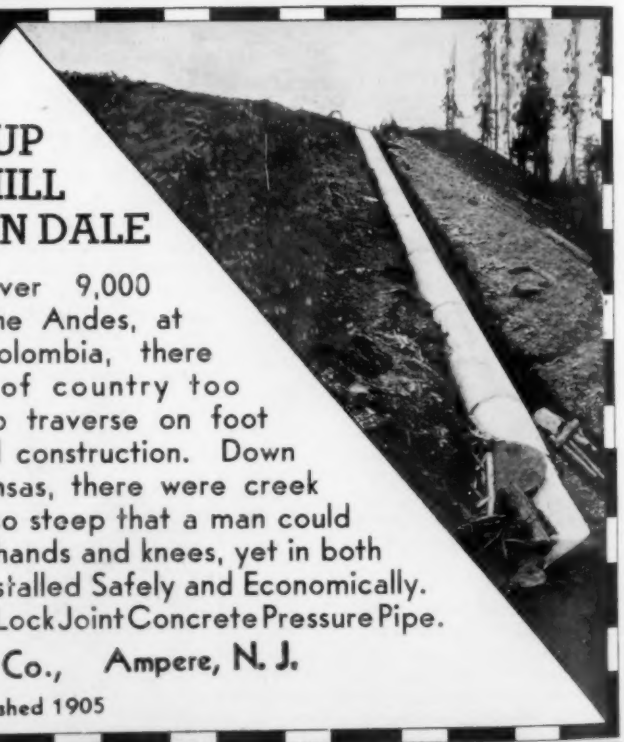
Sewer



## UP HILL DOWN DALE

Up over 9,000 feet in the Andes, at Bogota, Colombia, there were miles of country too rugged even to traverse on foot before we started construction. Down in Little Rock, Arkansas, there were creek crossings with grades so steep that a man could ascend them only on his hands and knees, yet in both places Lock Joint Pipe was installed Safely and Economically. There is no country too rough for Lock Joint Concrete Pressure Pipe.

**Lock Joint Pipe Co., Ampere, N. J.**

Established 1905

## LOCK JOINT Rein-forced CONCRETE PRESSURE PIPE

and surrounding ground. Residents of the town swim free, and outsiders pay $4 a season or 25 cents a swim. These fees amount to about $1,000 a summer, covering running expenses. Payments are made on the loan out of an $800 annual rental from the Fire Department for emergency reservoir rights, and a $300 fee from the school board for use of the pool in school recreational programs.

Recently the borough took over the duties of the Swimming Association, agreeing to retire the loans as soon as possible and supervise the running of the pool. The few acres surrounding the pool have been graded and landscaped and made into a park with picnic tables, a sand-pit, and recreational equipment. The Rotary Club has built a Boy Scout house close to the pool, and the local firemen have sponsored the building of a picnic pavilion, containing gas grates to eliminate the need of firewood.

This monument to unselfish community cooperation has paid for itself directly as well as in terms of health, lowered fire insurance rates and increased property values in New Wilmington.

WALTER RUDOLPH.

## *Three Fields for Civic Improvement*

CONNERSVILLE, IND.—This city has the distinction of having the lowest water rates in Indiana. Recently its deep-well water works were tremendously improved by the construction of a new pumping house equipped with two Cooper-Bessemer diesel oil engines, each driving a 250-kw electric generator. This equipment replaces an old, obsolete steam air-lift system of pumping water, and is far more economical. The improvement is a WPA project, for which the Federal Government made a grant of $51,500 and the city issued water-works revenue bonds in the sum of $63,000 which were sold at a handsome premium.

One of the diesel engines performs only stand-by service, each of the two engines having sufficient capacity to meet the water-pumping requirements plus additional current for the street lighting for the entire city. But not until 1937 did the city have unrestricted rights to light its streets. Under provisions of an old state law, a city could not generate electricity for street lighting or any other municipal purpose unless, first of all, the council adopted a resolution declaring it of public necessity to take such action. But from the council's decision the private utility could appeal to the Circuit Court and from there to the Supreme Court. The law also provided that a popular referendum must be held before a municipality could serve itself. Thus the private utility had every chance to resist public service, and although several Indiana cities voted in favor of the latter by large majorities, no progress was made toward acquistion because of litigation instituted by the privately owned utilities.

The new amendment, which was passed in the 1937 Legislature, provides that after the council has adopted a resolution declaring it of public convenience or necessity for the city to light its streets, such action shall be final, and from this decision there shall be no appeal. Now Connersville lights its streets with the additional current generated at the water works, thus further increasing the efficiency of the plant.

The city of Connersville has secured other fine improvements in the past few years. A community building and a swimming pool have sprung up in Roberts Park with the aid of WPA labor and a 40 per cent grant of materials. The city's share of the cost came from the James E. Roberts Trust Fund, which was provided by the donor of the park for its subsequent beautification. Finally, a new and attractive, seven-arch concrete bridge has taken the place of the old, wooden covered bridge of horse-and-buggy days where State Roads Nos. 1 and 44 cross the East Fork of the Whitewater River. It was constructed by the State Highway Commission at an approximate cost of $120,000. The site on which the bridge is built was detached from the municipality during the period of construction to legally enable the State Highway Commission to make this improvement. Later it was again annexed by the city. Seven ornamental lights have been installed along each side of the bridge on top of the guard-rail. This lighting system is owned by the city, and was put in in anticipation of the passage of the new street-lighting law.

WILLIAM F. DENTLINGER,
Mayor.

## *A Planetarium for Pittsburgh*

PITTSBURGH, PA.—This city is to have the fifth planetarium in the United States, combined with one of the very few institutes of popular science in the world, according to a recent agreement between The Buhl Foundation and the city.

On the site of the old Allegheny City Hall at Federal and West Ohio Streets, the Buhl Foundation will build and present to the city of Pittsburgh The Buhl Planetarium and Institute of Popular Science, as a memorial to Henry Buhl, Jr., Pittsburgh merchant and philanthropist, whose will created the Foundation after his death in 1927. It will cost, when equipped, $750,000. The city will raze the present building, and construction of the new building will begin soon.

It will contain an auditorium seating approximately 400 persons for the planetarium demonstration, a completely equipped small lecture hall to seat about 250 persons, and approximately 20,000 square feet of exhibit space for popular scientific demonstrations. A roof observatory is also a part of the plan, which

THE OLD AND THE NEW RIVER BRIDGES AT CONNERSVILLE, IND.
The new bridge is less picturesque, but more graceful, safe and serviceable

# KRANE-KAR *A Gasoline Swing Boom Tractor Crane*

**With Orange-Peel Bucket as Sewer Catch-Basin Cleaning Machine or For Hook Line Work . . . 2½ & 5-Ton Capacities**

**For Setting Manhole Frames, Curbing, Handling Pipe, etc.**

For the first time—such important features . . . VISION for the Operator • AUTOMATIC Safety Brakes and Cutouts • EASY STEERING with Load • BOOM TOPPING with Full Load • STABILITY without Stabilizers or Jacks — same capacity at sides as front . . .

Sewer Catch Basin Cleaning Machine, KRANE KAR, equipped with a special deep-lip orange-peel Bucket, is a modern and efficient Catch Basin Cleaner. The machine is self-propelled. The operation is simple, entirely mechanical and controlled by one man who lets the bucket down into the manhole, raises the filled bucket, tops and swings the boom, and dumps the muck and collected material directly into the truck body. All operations are by power from the KRANE KAR engine.

A Descriptive SPECIFICATION suitable for use for Formal Bids will be gladly sent on request.

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# Wasted Water Means Lost Revenues

A Municipal Water Plant in the State of New York using *Simplex Water Waste Survey Equipment* has, by retaining a trained *Simplex* engineer to check its distribution system and large industrial meters, in the last three years discovered lost and wasted water equivalent to $37,650.00, a large percentage of which will be an annual saving.

A check on *your* distribution system might effect comparable reductions in operating costs.

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ONE-WAY PLOWS WINGS

Hand hydraulic or power hydraulic controls. There is a Parsons Representative near you.

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## THE WILLIAM S. HEWETT SYSTEM

*of reinforced construction*

gives you a structure that WILL NOT CRACK.

Write for Bulletin A, showing various designs of tanks, reservoirs and standpipes; and Bulletin B, explaining the theories on which the system is based.

At left—500,000 gallon elevated water storage tank

The William S. Hewett System
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was achieved after more than a year's study of the experience of planetaria elsewhere.

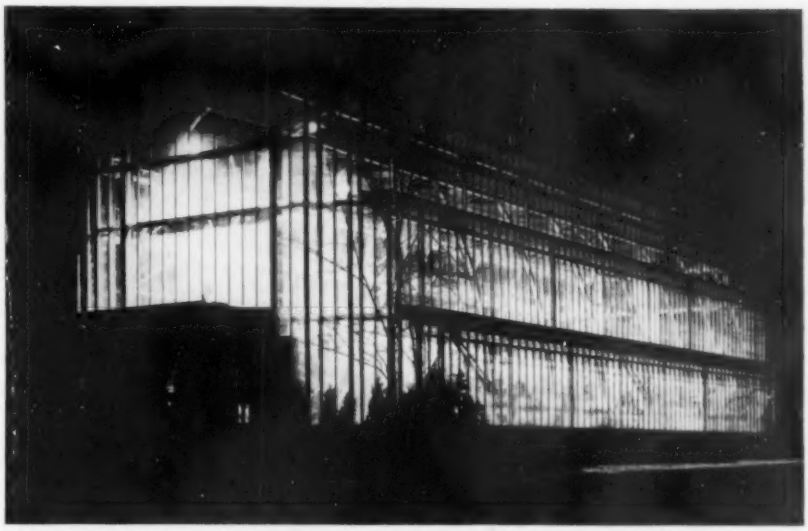
The site itself is especially appropriate for a monumental building of the character it is proposed to erect. Level, 200 feet square, surrounded on four sides by adequate streets, and facing upon Ober Park, the site is flanked by the Carnegie Hall and Library and by the North Side Post Office.

In the Institute of Popular Science, in connection with the planetarium, an effort will be made to demonstrate visually, by operating models, the progress of science in specific fields and contemporaneous achievements in various sciences. In this respect, the Institute would adapt methods proved successful in the Deutsches Museum in Munich and the Franklin Institute in Philadelphia.

The planetarium will be the fifth to be erected in the United States. Only New York, Philadelphia, Chicago, and Los Angeles have planetaria; and the popular science institute is an even rarer feature, of which the Franklin Institute in Philadelphia and the Deutsches Museum in Munich are the most noted examples.

The Institute will be managed by a board representing both the Foundation and the city government. The Foundation will assume financial responsibility for the operation and maintenance of the building over a long period of years.

C. V. STARRETT,
Associate Director, The Buhl Foundation, Pittsburgh.



THE "JEWEL BOX," AT FOREST PARK, ST. LOUIS, CONSTRUCTED ENTIRELY OF STEEL AND GLASS

Sixteen 1,000-watt Benjamin deep bowl reflectors are used to light the interior. These are mounted on each of the curved girders of the first terrace, eight on each side. Exterior illumination is provided by two 1,000-watt Benjamin enclosed type floodlights, mounted in front on the lawn corners. The structure consists of 4,000 panes of double-strength Libbey-Owens-Ford plate glass

## *A Glass Box Filled With Summertime*

ST. LOUIS, MO.—Our floral conservatory in Forest Park, of novel construction, is used exclusively for public floral display and is popularly known in St. Louis as "The Jewel Box."

The main display room is 55 x 144 feet in plan by 50 feet high. Ordinary double-strength first-quality glass, 24 x 36 inches, is used in the display room. The glass is only in vertical surface, all horizontal roof surfaces being of ordinary wood joists and sheathing construction and insulation and built-up roofing. The frame consists of eight arched-steel ribs formed of standard "H" sections.

In arriving at the general design of the building, several miniature models accurately constructed to scale were built. About 4,000 comparative light-intensity readings were taken in existing greenhouses, and in the experimental models, with the idea of eliminating all glass horizontal surfaces, thereby reducing damage liability from hail storms and at the same time providing a safe amount of light for flowers, trees and shrubs.

Heating is by a separate vacuum low-pressure plant, consisting of two boilers, one an automatic oil-burner and the other a manually-fired coal burner for emergency. There are four ranges of automatic temperature control. Cast-iron wall-type radiation is used, and all of it is along the stone walls. Additional radiation can easily be had on one of the upper levels, should this be found to be necessary.

The building has attracted wide attention, not only for its unusual design, but because of the floral displays it contains. There is a considerable portion of permanent planting of palms, ferns and other tropical and sub-tropical plants, all of which border along the stone walls of the building. The interior area is adaptable to ready changes, making it possible to revamp the design as occasion may demand, and suitable to flowers in season. During the chrysanthemum season, it is not a very difficult problem to set up a Japanese garden display, as well as other suitable garden designs for poinsettias, azalias, Easter lilies, hydrangeas and cinerarias.

The cost of the building completed was about $108,000.

GEORGE D. REICHERT,
Superintendent of Construction, Division of Parks and Recreation, St. Louis, Mo.

# Lower Taxi Rates and Improved Service

FOLLOWING negotiations between Robert T. Bowman, President of the Trenton Chamber of Commerce, and Rankin Johnson, President of the Terminal Cab Co., new and improved taxi service has been established in New Jersey's capital city. The Terminal Cab Co. purchased an entirely new fleet of passenger automobiles with which it inaugurated its plan of better cab service at lower rates on a zone basis instead of the former mileage or meter plan.

Instead of passengers paying according to meter readings, the city is divided into several zones, as shown on the accompanying map, and rates are based on a table of these zone rates carried by each cab operator. The highest fare within Trenton is 75 cents and the lowest 25 cents. The rates are the same for one passenger or for four.

PUBLIC CAB ZONE MAP, TRENTON, N. J.

| | 1 | 2A | 2B | 2C | 3A | 3B | 3C | 4A | 4C |
|---|---|---|---|---|---|---|---|---|---|
| 1 | .25 | | | | | | | | |
| 2A | .35 | .35 | | | | | | | |
| 2B | .35 | .45 | .35 | | | | | | |
| 2C | .35 | .45 | .45 | .35 | | | | | |
| 3A | .45 | .45 | .55 | .55 | .45 | | | | |
| 3B | .45 | .55 | .45 | .55 | .65 | .45 | | | |
| 3C | .45 | .55 | .55 | .45 | .65 | .65 | .45 | | |
| 4A | .55 | .55 | .65 | .65 | .55 | .75 | .75 | .55 | |
| 4C | .55 | .65 | .65 | .55 | .75 | .75 | .55 | .65 | .55 |

TABLE SHOWING RATE OF FARE

To find the rate of fare between the zones, follow down the vertical column under the lower numbered zone and read the fare opposite the zone with the higher number

### CORRECTION

The chain conveyor of the new mechanically loaded collection truck of the New York City Department of Sanitation, described on page 58 of the August issue, travels at 60 feet per minute instead of 660 feet as printed.

# IDEAL ROTO SWEEPER

Cuts SWEEPING COSTS in Half

Hudson River Parkway

Every city, town and village can use one or more of these power sweepers to splendid advantage. Work equally well on concrete, wood, tile, brick or asphalt. Do a clean job of sweeping dust, sand, gravel, cinder, paper, etc.

**Wherever there are large floor areas to be swept this power sweeper will save money.**

It is truly amazing how quickly large areas can be swept absolutely clean with the Ideal Roto Sweeper. On any job where you would work from three to eight men with hand brushes or brooms, one of these power sweepers will save labor and do a better job in the bargain. With one or more of these power sweepers you can take care of all the sweeping jobs that are often neglected through lack of sufficient available labor.

Large cities will find this "one-man" power sweeper is a splendid auxiliary to their big tractor street sweepers, and for many other sweeping jobs around airports, public buildings, markets, docks, loading platforms, etc. Towns and villages can now have cleaner and better kept streets at a very minimum labor cost.

Ideal Roto Sweeper is made in two types—with straight brush and with angle brush. Write for catalog and prices.

**IDEAL POWER LAWN MOWER COMPANY**
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LANSING MICHIGAN

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Send information on Ideal Roto Sweeper to

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City ..... State .....



# POOL HEALTH

THE popularity of any Swim Pool—municipal, club or private—depends upon the condition of the water. To be absolutely safe, pool water should be crystal-clear and kept in constant circulation.

Graver Swim Pool equipment insures water that is actually "pure enough to drink." Graver units are the result of years of sound engineering and designing experience.

**MUNICIPALITIES . . . COUNTRY CLUBS . . . ESTATE OWNERS . . .**

If you are planning a pool, be sure to send for the Graver Book on Design, Construction and Operation of Modern Pools. It is chuck full of first-hand data presented in an interesting, comprehensive way. You may have a copy on request.

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# The Murdock Outdoor Drinking Fountain

Ultra-modern, anti-freezing. Positively the most practical fountain for public service obtainable. Highly endorsed by over 800 municipalities alone.

***Splendid for***

**PARKS, PLAYGROUNDS, ATHLETIC FIELDS, RECREATION CENTERS, OPEN SQUARES, PUBLIC STREETS**

Modern type bubbler extends well above rim of basin so latter may overflow in case of drain stoppage thus preventing contaminated water reaching drinking supply.

*If you desire to modernize old Murdock fountains, write for complete information to*

**The Murdock Mfg. & Supply Co.**
Cincinnati Ohio

*Makers of Outdoor Water Devices Since 1853*



## "FOR EFFICIENT AND ECONOMICAL WATERING, GET THIS FREE CATALOG"

It explains in detail, portable, semi-portable, snap valve, hoseless or complete underground watering equipment designed to keep your parks, parkways or your beautiful spots always fresh and healthy.

Skinner System of Irrigation offers a complete engineering and consulting service which will handle your watering problems better and at lower cost. A card or letter today will bring our catalog and details of our service. No obligation.

The Skinner Irrigation Co., 447 Canal St., Troy, Ohio

Pioneer Leader

*Skinner System of Irrigation*

*Pekin replaced 11 blocks of its main street with concrete—two 11-ft. parking lanes and a 20-ft. roadway. Paving work is now in progress on Second Street and Distillery Drive.*

# SOUND PLANNING ACHIEVES COMPREHENSIVE PAVEMENT PROGRAM

## Pekin, growing industrial city, now enjoys benefits of new concrete streets

CAREFUL planning—and the use of economical concrete—enabled Pekin, Illinois, to solve its street problem at a cost within available funds.

Pekin added property assessments and its motor revenues to a PWA grant. With this fund, a big section of the main business street was paved with concrete, and also a 27-block belt line designed to route through traffic around the congested district.

Concrete was chosen. It saves money because it actually costs less to build than other pavements of equal load carrying capacity, and costs far less to maintain.

Build your city's streets with concrete. Write us for complete information.

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Knoxville, Tenn.
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Lubbock, Tex.
Meadville, Pa.
Miami, Fla.
Norfolk, Va.
Oklahoma City, Okla.
Ponca City, Okla.
Providence, R. I.
*Sacramento, Calif.
San Antonio, Tex.
Sharon, Pa.
St. Petersburg, Fla.
Toledo, Ohio
Uniontown, Pa.
Wilmington, Del.
*Meters ordered for installation.

This is the Dual Automatic Parking Meter—the first of its kind—the meter that is providing an outstanding service in cities from coast to coast. The Dual Automatic Parking Meter is a dependable mechanical policeman which regulates parking, eliminates illegal double parking, and reduces traffic congestion. If your city is not enjoying the tremendous advantages the Dual Automatic Parking Meter offers, you are privileged to investigate now! Write for details today!

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# DUAL PARKING METER CO.

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We grow a complete assortment of Northern-grown specimen Trees—Shrubs—Evergreens and other ornamentals for Park, Streets, and Municipal plantings.

*Consultations and inquiries invited*

# PONTIAC NURSERIES

ROMEO, MICHIGAN

# Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 1 Park Ave., New York
Paul L. Green, Chairman; John T. Gibala, Vice-Chairman; William C. Brandes, Otto K. Jelinik, Burton W. Marsh, William R. McConochie, E. J. McIlraith, Donald M. McNeil, D. Grant Mickle, Robert A. Mitchell, P. Taylor, Rayburn Hoffman

## State Highway Departments as a Factor in Signalization

A SURVEY was made by THE AMERICAN CITY in July, 1937, to determine to what extent the state highway departments own and maintain traffic signals, and how many intersections they plan to signalize during the next two years, how many state-highway intersections need to be signalized for maximum safety and flow of traffic, and the name and title of the individual who has charge of installation and maintenance of signs, signals and markings.

The following ten departments have not yet responded to requests for data: Georgia, Iowa, Kansas, Louisiana, Montana, Oregon, Pennsylvania, Rhode Island, South Carolina and Utah.

Of the 38 state highway departments, tions, 15 were in a position statistically to give the number of traffic signals owned and maintained by their municipalities: 3,890. The states own 583 signals; they maintain 1,738 which they do not own; and they maintain as well as own 510 signals.

Twenty-two states neither own nor maintain any traffic signals.

Of the 38 state highway departments, 8 estimate that during the next two years they expect to install 247 traffic signals; 9 report that they cannot estimate; and 20 states report that they will install no traffic signals during the next two years.

How many intersections would need to be signalized for maximum safety and flow of traffic?

Michigan says "Not over 20."
New Jersey says "Several hundred."
Ohio says 75.
Oklahoma says "Very few."
Tennessee says 10.
Twenty-three states do not know.
Ten states say "None."

Of the 38 states reporting in this survey, 9 possess the legal power of approval over traffic signals purchased by their municipalities, 5 do not answer this question, 5 have the power where state routes are affected, 18 states have no authority to pass on municipal signal purchases.

In the following 10 states a Traffic Engineer has charge of installation and maintenance of traffic-control devices on highways: Arizona, Illinois, Indiana, Massachusetts, Michigan, Minnesota, New Hampshire, North Dakota, Ohio and Wisconsin.

TRAFFIC SIGNALS OWNED AND MAINTAINED BY STATES

| | Purchased Only by State | Maintained Only by State | Purchased and Maintained by State | by Municipalities | Planned by State in Next 2 Years: Major | Secondary | Total of New Signalized Intersections Needed (State) | Are Mun. Signals Approved by State? |
|---|---|---|---|---|---|---|---|---|
| Alabama | 0 | 0 | 0 | All | 0 | 0 | 0 | Yes |
| Arizona | 0 | 0 | 0 | 19 | 0 | 0 | 0 | |
| Arkansas | 0 | 0 | 0 | 75 | 0 | 0 | 0 | [1] |
| California | 0 | 0 | 0 | 370 | 0 | 0 | ? | Yes |
| Colorado | 0 | 0 | 0 | 146 | 0 | 0 | ? | Yes |
| Connecticut | 0 | 0 | 0 | ? | 0 | 0 | ? | |
| Delaware | 42 | 42 | 42 | 33 | ? | ? | ? | No |
| Florida | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Georgia | | | | No report | | | | |
| Idaho | 0 | 0 | 0 | All | 0 | 0 | 0 | No |
| Illinois | 50[2] | 50[2] | 50[2] | 1,000 | 25 | 0 | ? | Yes |
| Indiana | 6 | 6 | 6 | ? | ? | ? | ? | |
| Iowa | | | | No report | | | | |
| Kansas | | | | No report | | | | |
| Kentucky | 0 | | 0 | ? | 28[3] | 10[3] | ? | No |
| Louisiana | | | | No report | | | | |
| Maine | 17[12] | 0 | 2 | | | | | No |
| Maryland | 3 | 3 | 3 | ? | ? | | ? | [1] |
| Massachusetts | 108[4] | 108 | 108 | 741 | ? | ? | ? | Yes |
| Michigan | 200 - | 550 - | 200 - | 20 | 40 | 0 - | 20 | Yes. |
| Minnesota | 0 | 0 | 0 | [6] | | | | Yes |
| Mississippi | 0 | 0 | 0 | ? | ? | ? | ? | [1] |
| Missouri | 5 | 5 | 5 | ? | ? | ? | ? | No |
| Montana | | | | No report | | | | |
| Nebraska | 35[6] | 2 | 2 | 100 | ? | ? | ? | [1] |
| Nevada | 0 | 0 | 0 | 8[11] | 0 | 0 | 0 | No |
| New Hampshire | 0 | 0 | 5[7] | 50 | 0 | 0 | ? | Yes |
| New Jersey | 19 | 22 | 19 | 200-300 | 80 | 0 | [8] | Yes |
| New Mexico | 0 | 0 | 0 | ? | 0 | 0 | ? | No |
| New York | 2 | 933 | 2 | ? | ? | ? | ? | No |
| North Carolina | 0 | 0 | 0 | 1,000 | 1 | 0 | ? | No |
| North Dakota | 0 | 0 | 0 | | 0 | 0 | | |
| Ohio | 21 | 21 | 21 | | 30 | 10 | 75 | [9] |
| Oklahoma | 1 | 1 | 0 | Many | Few | 0 | Few | No |
| Oregon | | | | No report | | | | |
| Pennsylvania | | | | No report | | | | |
| Rhode Island | | | | No report | | | | |
| South Carolina | | | | No report | | | | |
| South Dakota | 0 | 0 | 0 | 28 | 0 | 0 | ? | No |
| Tennessee | 0 | 0 | 0 | ? | 0 | 0 | 10 | No |
| Texas | 0 | 0 | 0 | ? | 0 | 0 | 0 | No |
| Utah | | | | No report | | | | |
| Vermont | 0 | 0 | 0 | 50 | 0 | 0 | | No |
| Virginia | 0 | 0 | 0 | | 0 | 0 | 0 | No |
| Washington | 0 | 0 | 0 | ? | 0 | 0 | 0 | [1] |
| West Virginia | 0 | 0 | 0 | ? | 0 | 0 | 0 | No[10] |
| Wisconsin | 62 | 45 | 45 | ? | 8 | 0 | | No |
| Wyoming | 12 | 0 | 0 | 0 | 5 | 0 | | No |

[1]Where state routes are affected. [2]Local authorities furnish power for these 50 signals. [3]Railroad crossings. [4]108 purchased by state alone and 31 by state, municipality or railroad. [5]All by municipalities, with state contributing part of installation cost. [6]Purchased with state and Federal funds. [7]Flashing signals only. [8]Several hundred. [9]State approval for muncipalities to 5,000 population, which own and maintain 490 traffic signals. [10]Approve for road clearance only. [11]Reno only city with traffic signals. [12]Overhead beacons maintained and operated by the towns where located.

## *Cut the Politics*

I BELIEVE everyone who takes a serious interest in the traffic problem will agree that neither business nor political influence should be allowed to determine the erection of traffic signals. Traffic signals are erected to prevent accidents, and to regulate traffic without undue delay. To be effective rather than a nuisance (which tends to increase accidents), they should be erected only where the volume of traffic is so heavy that the vehicles in one stream have difficulty *in getting through the vehicles in the opposing stream*, and where the efforts of the drivers to manipulate such a crossing are resulting in right-angle collisions. There are two main exceptions: one where signals are erected at less important intersections in a signal system in order to make motorists maintain a predetermined speed; and the other where there is an unusually heavy movement of pedestrians.

For the last six years, we have been following a policy of installing traffic signals where they are warranted as shown by our accident and volume records. We convinced the "political interests" that adherence to this policy improved the accident situation and made driving more enjoyable. They are also sympathetic because it has practically eliminated the day-by-day requests which they used to receive from constituents for traffic lights. The citizens have come to know that lights are placed where they are warranted and not where they are asked for. Any requests the politicians get are turned over to our office, and we contact the complainant and give him logical reasons for our actions, and in practically every case we make a satisfied customer. In other words, when favoritism is used to place traffic equipment, every Tom, Dick and Harry cries for attention because "Smith" was taken care of and there is no logical argument to advance to show why they shouldn't be taken care

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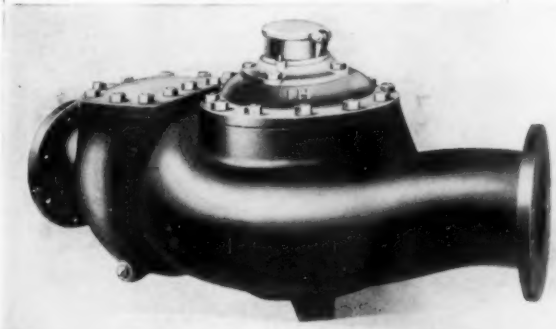

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of. However, when no favorites are played and the installations are based on factual data, everyone seems satisfied. Until a few years ago, practically every complaint we received was for a traffic signal; today people request either a *survey* to determine what can be done to improve conditions at the location, or they state that they believe STOP or WARNING signs are necessary.

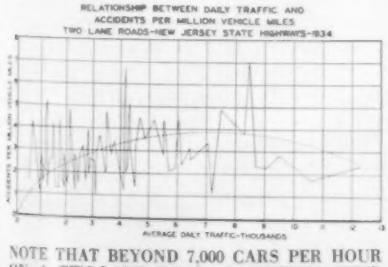
It might interest you to know that changes to the Vehicle Code of the Commonwealth of Pennsylvania, effective September 1, 1937, include a clause that traffic signals erected in the state are to be erected on the basis of accidents and volume, and that the Secretary of Highways shall establish minimum standards upon which approval of the erection or maintenance of the signal shall be based. Therefore, the city of Philadelphia has to abide by these regulations and any nuisance signals would be barred.

Regarding the cost of timers in signal systems, I tried to make it clear that my article in the June issue did not include the cost of timers, because of so many varying conditions. The price of timers, the cost of cable and conduit, the cost of excavation, and the availability of existing conduit, are some of the factors that must be considered, and, as you know, these vary in different localities. The length of the system and of the blocks in the system also make a difference. In making a general statement that "it is undoubtedly a little cheaper to control a number of signal installations with one timer than to use a timer for each installation," I had in mind those systems where the individual timers are controlled by a master timer and interconnecting cable is required. It has been our experience that individual synchronous motor timers get out of step unless they are kept in step by a master timer.

ROBERT A. MITCHELL,
Traffic Engineer, Philadelphia, Pa.

## *Relationship Between Daily Traffic and Accident Rates*

TO determine the relationship between daily traffic and accident experience, a survey was made on two-lane roads or portions of two-lane roads in the New

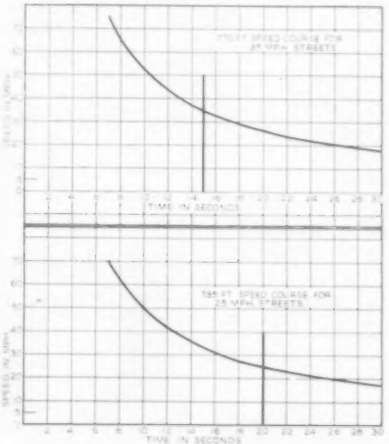

RELATIONSHIP BETWEEN DAILY TRAFFIC AND
ACCIDENTS PER MILLION VEHICLE MILES
TWO LANE ROADS-NEW JERSEY STATE HIGHWAYS-1934
ACCIDENTS PER MILLION VEHICLE MILES
AVERAGE DAILY TRAFFIC-THOUSANDS

NOTE THAT BEYOND 7,000 CARS PER HOUR ON A TWO-LANE ROAD, ACCIDENTS TEND TO DECREASE IN NUMBER

Jersey state highway system, the results of which are shown in the chart.

It is interesting to note from this chart the rather definite relationship between daily traffic volume and accidents per million vehicle-miles. As the average daily traffic increases, accident experience on a million vehicle-miles basis likewise increases up to approximately 7,000 vehicles per day, which is considered by many authorities to be the capacity of a two-lane highway. Beyond that point, primarily because of congestion and the resultant decrease in speed and flexibility of movement during heavy-traffic hours, there is a gradual decrease in the accident rate, despite the increase in traffic

ARNOLD VEY,
Traffic Engineer, State of New Jersey.




TO THE LEFT OF THE VERTICAL LINE IN THE CHARTS IS SPEEDING

For example, on the upper curve, if the car made the 770-foot course in 8 seconds, it was traveling 65 mph. (See below)

## *Snaring Speeders in Kansas City*

IN Kansas City all phases of the traffic problem are being approached in a scientific manner, the latest innovation being a new method of catching speeders which has been developed jointly by Otto P. Higgins, Director of Police, and T. J. Seburn, City Traffic Engineer. This plan uses stop-watch and short-wave radio to determine the average speed of a vehicle over a measured course of more than an eighth of a mile.

For use on streets where the speed limit is 35 miles per hour, a distance of 770 feet is measured off at any point along the street. A car traveling 35 miles per hour will traverse this distance in exactly 15 seconds, and anyone covering the measured course in less time has been guilty of exceeding the speed limit.

A portable short wave two-way radio is located at each end of the measured speed course, each operated by officers in plain clothes. For purpose of discussion we will designate the man at the beginning point as "A" and the man at the finish line as "B." Officer "B" has a stop-watch, and there are two or three motorcycle officers in ambush at a point where they can clearly see "B."

When "A" sees a car approaching at a speed which appears to be excessive, he announces "Ready," and at the instant the vehicle passes his station he calls "check." "B" releases the stop-watch and listens for a brief description of the car from "A." As the car in question passes station B, the running time between the two points is taken. If this time is less than 15 seconds, a motorcycle officer is dispatched to bring the speeder back, while "B" determines the speed from a chart that has been prepared.

This system is designed to get the "traffic chiseler" and "cop-watcher," who constitutes a much greater accident hazard because a share of his attention which should be on the roadway ahead is diverted to the business of watching for officers so that he can slow down before the patrolman can determine the speed. It is a trap which takes advantage of those who are taking advantage of society by their unfair method of driving.

A number of tests were made of cars traveling at known speeds before this plan was put into operation, and the speeds were checked to one mile per hour. The effectiveness of the plan is indicated by the fact that almost 100 per cent of the drivers arrested up to the present time have pleaded guilty before the Court.

## *Bureau of Safety at Rutgers*

ON the basis of the success of its traffic officers' training school, Rutgers University, at New Brunswick, N. J., announced in July the establishment of a Bureau of Public Safety headed by Lawrence B. Tipton, who had conducted the course last April. The Bureau will concern itself with traffic control, criminal control, engineering for safety, and home safety. The divisions under traffic control are education, enforcement and traffic engineering, with such subjects as accident records, spot maps, reporting systems, traffic movement, surveys, signs and signals.

*Courtesy K. E. Erickson Co., Inc., Portland, Ore.*

SELF-RIGHTING SIGNS

These self-righting flags can be used not only for protecting school zones, as shown here, but, with appropriate wording and with or without reflectors, can be placed at many other hazardous locations

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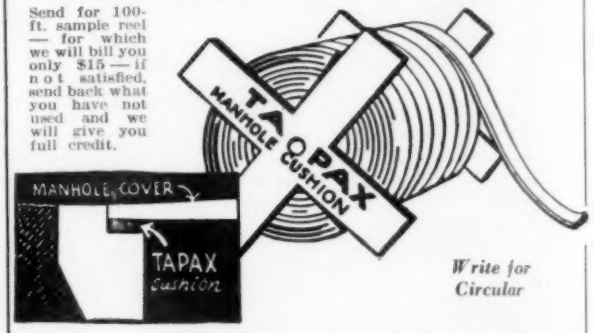


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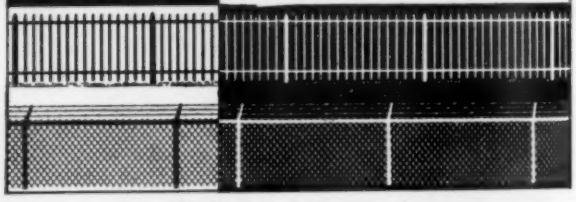

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# Improving Municipal Administration

Current Items from the Public Administration Clearing House

## *Cities Left with Abandoned Trolley Tracks Find Removal a Problem*

STREET-CAR tracks left by abandoned trolley lines are a source of annoyance to cities whose problem it is to get rid of them. From Manhattan Island, N. Y., to Wichita, Kans., the tracks may be found lying useless in streets where buses now rumble, frequently because there were no contracts to hold the traction company responsible for their removal when the shift from trolleys to buses was made.

A survey of action taken by 37 American cities on this problem has been issued jointly by the American Municipal Association, the American Public Works Association and the International City Managers' Association, from information gathered under the direction of Joseph E. English, Department of Public Works and Service, Trenton, N. J., and Thomas J. Walsh, Administrative Assistant to Trenton's City Manager, Paul Morton.

Although in some cases stipulations in traction franchises specify the traction company's duty to restore the pavement to conformity with the remaining street surface when tracks are abandoned, it is often difficult to force the company, especially if it is in receivership, to carry out the terms of the contract, says the pamphlet.

Among plans followed by cities in removing the abandoned tracks are these:

(1) The company conveys title to the tracks to the city, in return for which the city releases the company from any further obligations; under this arrangement the city paves the street, at the same time removing the tracks for salvage.

(2) The company makes a cash payment to the city to discharge any obligations on rail removal.

(3) In cases where the city is not ready to repave, the company is permitted to cover the rails with asphalt, concrete or other material, leaving them buried in the street until the entire thoroughfare is repaved.

## *Cities Push Community Center Movement*

AMERICAN cities are giving more and more attention to leisure playtime facilities, in the effort to capture greater health and more happiness for their citizens. City recreation programs show greatest recent advancements in the community or social center.

Out of 321 cities, there are found 1,347 recreation buildings variously called community houses, clubhouses, playfields or community center buildings. School buildings are even more widely used for this purpose. This year, 415 cities reported nearly 4,000 recreation centers carried on in churches, city halls and libraries.

By far the largest number of community centers are located in schools, which are already equipped with auditoriums, shops, playrooms, libraries, laboratories, swimming pools and gymnasiums. For example, recently constructed school buildings in Cleveland have been planned also for community use, with gymnasiums and auditoriums in separate units so they may be used without opening the rest of the building. They also have community locker and shower rooms.

Writing in the August issue of *Public Management*, George D. Butler, of the National Recreation Association, New York City, discusses the new types of recreation centers.*

One of the newest is the recently opened auditorium-gymnasium at Shawnee, Okla. It has a swimming pool, tennis courts, wading pool, croquet courts, swings and benches in a central park area. A common type of community building in other cities has outdoor play areas in connection with an assembly room or social room and one or more clubrooms. Los Angeles has four new special buildings; Highland Park, Mich., is building one; Lexington, Ky., is converting an old house into one; Scranton, Pa., has a new field house; and Altadena, Calif., has dedicated a new recreation building. Other cities recently extending community-center programs are: Elizabeth, N. J.; Reading, Pa.; Birmingham, Ala.; Decatur, Ill.; Sioux City, Iowa; Newark, N. J.; New York City; and Washington, D. C.

*EDITORIAL NOTE.—See also "Leisure and the Community Center," in THE AMERICAN CITY for August, 1937, pages 66-67.

## *Centralized Purchasing Saves 200 Cities 15 Per Cent in Tax Money*

BUSINESS methods are being applied more and more in handling the public business. Centralizing purchasing, the "sentry at the tax exit gate," has been installed in more than 200 cities, 16 counties, 36 states and 5 provinces of Canada, figures furnished by the Municipal Finance Officers' Association show. It is estimated that New York City, Cincinnati and Milwaukee alone save about $10,000,000 a year through their central purchasing plan.

These cities are still forerunners in the hard-headed process of making the tax dollar buy the most possible, reports received at M.F.O.A. offices indicate. Thirty or forty per cent of every tax dollar is spent for commodities, and centralized purchasing under competent non-political personnel is regarded as a definite means to conserve these expenditures. Statistics gathered throughout the country prove that an average savings of 15 per cent are achieved through efficient operation of a central purchasing department. One of the purchasing agents' biggest jobs is foreseeing the rise in market prices, and taking advantage of this knowledge to make the savings possible under quantity buying.

Dr. Russell Forbes, Commissioner of Purchases, New York City, defines centralized purchasing as "the delegation to one office of the authority to buy supplies, materials and equipment needed by all the operating branches of an organization." He also says: "The essential business of municipal purchasing consists of furnishing exactly the right product at the time it is needed, at the best price."

New York City, before centralized purchasing, spent about $25,000,000 a year for supplies under the budget alone, exclusive of open market orders and expenditures for supplies, materials and equipment under corporate stock appropriations for public improvements, which hit about $25,000,000 more. Fifteen per cent meant a big saving there.

Milwaukee's Central Board of Purchasing, during 1936, handled about $3,000,000 in supplies, materials, equipment and minor services. Savings there, too, average 15 per cent and deliveries are speeded. Cincinnati's Department of Purchasing handled $5,605,550 worth of business in 1936, encompassing 13,247 purchase orders, and entailing 309 contracts.

## *City Tests High-School Students as Apprentices*

THE experiment of using high-school vocational training students as apprentices in city hall is being tried in Escanaba, Mich., a city of 14,524, *Public Management* reports.

Students were selected on their scholastic records, and after interviews with City Manager George E. Bean. Two apprentices were placed in the City Engineer's office and one in the municipal garage. They will do "laboratory work" and will receive high-school credit for it. Two students who worked under the system last year are employed by the city this summer on a $50 per month apprentice basis.

Tentative plans for next year will place one or two apprentices in the Water Department, one at the sewage disposal plant, one in the light plant, and two or three more in the City Engineering Department.

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

# Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning: The Laws, Administration and Court Decisions During the First Twenty Years"

## *Business District*

CALIFORNIA. — *Reynolds v. Barrett, Building Inspector*, 68 Pac. 2d. 266 (District Court of Appeals, First District, Division 1).—This is an action by one Reynolds and others, as owners of property outside any business zone, to compel the building inspector of the city of Piedmont to issue them a permit to erect a gasoline station—a business structure—on their land.

Under the zoning ordinance, two business districts were created, one the "Highland" district, near which the plaintiff's property is located, the other the "Grand Avenue" district. The two districts are so separated by difference in elevation, by street alignment and by distance as to be non-competitive.

A monopoly of ownership exists in the "Highland" district in that it is all, except property devoted to public use, owned by one corporation. A monopoly of use also exists and there is no room for expansion.

Property surrounding plaintiff's property is in business use; and their property could be so used without endangering the public health, safety, or general welfare.

The Court therefore finds the ordinance, as to plaintiff, discriminating and void and the issuance of a permit for a gasoline station on their property proper.

## *Residential District—Rear Yard*

DELAWARE.—*Appeal of Blackstone*, 190 Atl. 598 (Superior Court, February 11, 1937).*—Dr. Blackstone owned a three-story brick dwelling house on a lot 55 x 100 feet, in a Business "B" District. He was using the first floor in connection with the practice of his profession as a physician. The second and third floors contained living quarters for himself and his family. Adjoining to the south was a six-story building, used for business purposes on the first, and professional offices on the remaining floors, and covering practically all of the lot upon which it was located. The property to the west and north was developed with dwellings similar in type to the Blackstone dwelling.

The doctor applied for a permit to build a second-story addition to his garage and to connect it with the second story of the dwelling so as to provide an additional room. The permit was denied by the Building Inspector because the proposed addition would be in violation of Section 10 of the Building Zone Ordinance. The doctor appealed to the Board of Adjustment for a variation, which was also denied, and then he appealed to the Superior Court of Delaware to review the denial of the variation.

Section 10 of the ordinance provided in part:

"Except as hereinafter specified, a rear yard is required in any district. The depth of the rear yard shall be not less than * * * 15 feet in an apartment district * * *.

"In Business 'B' * * * Districts the minimum requirements for rear yards shall be the same as in Apartment Districts, except as follows:

"In buildings not occupied on the first floor for residence purposes, the buildings may occupy the entire lot up to the level of the second-story window-sills * * *."

In effect, the application of the entire ordinance was such that the property adjoining on the west could build a six-story mercantile structure on the same property line where Dr. Blackstone was refused permission to build a second-story addition (the property line being a rear line of Blackstone's lot and a side line for the other lot), as no side yards were required for business buildings.

The Superior Court decided in part as follows:

"Considering the objects sought to be accomplished * * * the standards and guides contained in the Enabling Act are sufficiently definite to control the discretion of the Board of Adjustment in its power to vary the terms of the ordinance. The words 'unnecessary hardship,' 'spirit of the ordinance' and 'substantial justice,' as contained in the Act, are words having meanings which are understandable to any person of average intelligence * * * * *

"No owner is entitled as a matter of right to have a variance from the terms of the ordinance made for his benefit, * * * * * *

"The provisions of the Building Zone Ordinance requiring in Business 'B' Districts rear yards for buildings used for residential purposes are no greater as to area than in any other district, are general, uniform and impartial in their operation upon the owners of property in Business 'B' Districts, and have, as above stated, a substantial relation to the public health and safety of the people residing in such districts, and they are therefore not invalid."

The order of the Board of Adjustment was affirmed, and the addition to the garage could not be constructed.

## *Dedication*

MICHIGAN.—*Westveer v. Armsworth*, 273 N. W. 275 (Supreme Court, May 21, 1937).—The owner of land by the sea made and recorded a plat of it, and sold most of the lots, by reference to this plat, to the defendants, or those from whom the defendants purchased them. The plaintiffs have become the owners of the rest of the land. The public has never accepted the dedication of the public streets. The plaintiffs seek to vacate the plat and discontinue the streets shown on it, under a statute allowing plots to be vacated. To this the defendants object.

It is the great weight of authority that dedication by the owner becomes irrevocable upon sale of lots by reference to the plat, and he is estopped to vacate it. This estoppel, however, has its limitations. The purchasers are entitled to have the streets necessary or convenient for their use and enjoyment kept open for their own and the public's use, but the proprietor may reclaim and shut up any street or portion thereof shown on its plat, where private rights are not directly affected. The statutes provide for vacating such streets unless there is "reasonable objection."

There is no common test as to the things the lot purchaser must do upon the public platted grounds in order to make his objection reasonable. Where the value and charm of summer home property lay in its natural wildness, and, according to the plat with respect to which lot owners purchased property, the colony remains permanently small, and spaces in front of lots open, their objection to vacation of the plot was "reasonable."

## *Parks—Playgrounds—Dedication*

NEW YORK.—*Beth Israel Hospital Association v. Robert Moses, Commissioner of Parks, and the City of New York.* Appellate Division, reported in *New York Law Journal*, April 22, 1937, page 1997.—Stuyvesant Square is a public park in the city of New York. The land was deeded to the city by Peter G. Stuyvesant, to be maintained as a park, beautiful and embellished with lawns, shrubbery, trees, winding walks and fountains. The city now proposes to establish public playgrounds there. This suit is brought in behalf of the hospital, and other owners of abutting property, purchasers from the giver of the square or his successors in title, to prevent this action by the city; and this Court renders its decision in favor of these property owners. Private grants dedicating property to public use are to be construed strictly as distinguished from a liberal construction of the use of park property acquired by condemnation or purchase.

Stuyvesant Square comprises the area between 15th and 17th Streets, divided by Second Avenue into two small squares, each so small that no part of it can be set aside for a modern playground without diverting it from the purpose for which it is dedicated. This case is thus obviously distinguishable from the case of a large park, where a playground might be placed in a favorable location without changing its general character.

To preserve the quiet in the vicinity of the hospital bringing the suit, the streets surrounding Stuyvesant Square have been declared hospital streets, and signs have been posted by the city au-

* From the Zoning Notes of the Chicago Regional Planning Association.

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thorities warning people traveling on these streets to refrain from making unnecessary noise. It would be manifestly incongruous to establish playgrounds in proximity to such signs.

## *Board of Appeals—Variance*

NEW YORK.—*People ex rel.* 2291 *Realty Corporation v. Murdock,* Supreme Court, Bronx County, reported in *New York Law Journal,* June 11, 1937, page 2949.—The Board of Appeals denied the application of the Realty Corporation to vary the use of a lot in a block, originally a residence district, which had been almost wholly transformed, by permitted variances under the hardship rule, into business use. This action was taken in accordance with the well-known cases of *Matter of Young Women's Hebrew Association* and *Matter of Levy,* reported in these Notes for May and August, 1935. These cases this Court holds to be inapplicable. In these cases the variation was refused by reason of the adverse effect upon adjacent properties. A variance should not be lightly granted for the benefit of one piece of property, where all other properties are left with the restricted use. The Board is powerless to grant to an individual a special privilege denied to others. Here, however, all the other property owners enjoy the benefit of a business use. To deny the petitioning Realty Corporation, the holder of the only restricted plot, the same privilege, is to discriminate against him. The Court ruled, therefore, that the application of the residence use rule to the plot in question would be a peculiar hardship.

## "Let's Move Out"

(An Editorial from the *Memphis Press-Scimitar* of July 3, 1937)

"LET'S move out," says the American family, seeking more air and green space.

But unfortunately the lots in the new area are too often not much if any larger than in the old. When it is entirely built up the congestion may be as bad as in the old.

In the meantime, in the old residence neighborhood a filling station or garage or lunch room appears, and the conclusion is jumped to that "this neighborhood is going to business." Some owners are elated and others grieved. But often both are mistaken, though both damaged. For what usually happens is that there is business enough to occupy only a minor fraction of the neighborhood. In between stand the homes, losing value as such every year, but not gaining enough as business property to compensate their owners for the loss of their residence value.

The remedy is stricter city planning. Business in an old residence area, as well as in a new, should be restricted to only a small part of it, and then the buildings should be covered by setback and other restrictions which will make them inoffensive even to their near neighbor residences.

In many cases where the mistake has already been made it will pay to go back to these areas which did not carry out their early promise to "go to business." They should be restored as residence areas. Often there are still standing structurally sound old homes that can be remodeled. Often there is even more generous garden space, and even taller trees, than are found "out." There is the added advantage that they are within easy distance of work and shopping, and sometimes they are even quieter than the new neighborhoods. It will often pay to compel the business which is scattered through such areas to concentrate at certain points. There are neighborhoods of this kind in Memphis.

Such reclamations will make for economy, comfort and beauty.

## Two One-Family Residence Zones in the Same Ordinance?

INQUIRY FROM SAMUEL RABKIN, CIVIL ENGINEER, LAND SURVEYOR, UNION, N. J.

Would it be legally possible to include in the same zoning ordinance two "one-family" zones whose only difference would be that in the Class A zone no residence could be constructed on a lot less than 50 feet in width, whereas in the Class B zone no residence could be constructed on a lot less than 40 feet in width?

REPLY BY FRANK B. WILLIAMS, EDITOR OF ZONING AND PLANNING NOTES

I do not know of any way of fixing, with any permanence, by zoning or otherwise, the width of lots, except of course by private covenant. This would seem to be necessarily so, because the mere width of a lot has no necessary relation to the general health, safety, etc., of the community. It is of course possible, within reasonable limits, to establish side yards of a given size, and to limit, by zones, the density of population. Thus to a certain extent the object of fixing the width of lots is attained.

You will see that a narrow house, on a narrow lot, might obtain the same amount of sun and air as a wider house on a wider lot. Perhaps it would not look as well; but the extent to which the police power can be used to improve appearances is still very much limited in this country.

## Recent City Manager Appointments

W. F. BELCHER has succeeded Finley McMullen as City Manager of Largo, Fla.

V. A. Bruno has been appointed City Manager of Pensacola, Fla., effective August 1.

Kenneth L. Carr, former Director of Public Works, has been appointed City Manager of Rockford, Mich.

V. W. Crawford is now City Manager of Cornelia, Ga.

E. P. Mitchell, at present City Treasurer, has been appointed City Manager of Bluefield, W. Va., to succeed Kyle L. Bruce, who resigned to become Sanitary Engineer in charge of the Greater Bluefield Sewage System.

P. P. Pilcher, one-time Manager of Decatur, Ga., New Smyrna, Winter Haven and Kissimmee, Fla., High Point and Salisbury, N. C., and Winchester, Va., has been appointed City Manager of Port Arthur, Texas, effective August 15, to succeed Robert L. Cooper.

James R. Pollock, one-time City Manager of Pontiac, Mich., who has held the position of Acting City Manager of Flint, Mich., for the past month, has been named City Manager.

E. R. Ringo has succeeded Angus McAllister as City Manager of La Grande, Ore.

R. K. Seward has succeeded John R. Jack, Sr., as City Manager of Punta Gorda, Fla.

Fred R. Williams has succeeded Walter Johnson as City Manager of Pawhuska, Okla.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

## The Municipal Bond Market

Recent sales of new issues from August numbers of *The Bond Buyer:*

| Amount | Borower and Purpose | Rate (%) | Term (Year) | Basis (%) |
|---|---|---|---|---|
| $156,000 | Everett, Mass., Macadam Pavement | 1.5 | 2.85 Avg. | 1.37 |
| 250,000 | Greenwich, Conn., Sewage-Disposal Plant | 1.75 | 1.10 Ser. | 1.58 |
| 136,000 | Fitchburg, Mass., Relief | 1.75 | 5.33 Avg. | 1.65 |
| 435,000 | Ramsey Co., Minn., Public Welfare | 2.25 | 5.66 Avg. | 2.08 |
| 245,000 | Easton, Pa., Funding and Refunding | 2.25 | 12.33 Avg. | 2.10 |
| 250,000 | Duluth, Minn., School, Refunding | 2.3 | 7.85 Avg. | 2.24 |
| 120,000 | Muncie, Ind., School | 2.5 | 14.75 Avg. | 2.38 |
| 500,000 | St. Paul, Minn., Sewage-Disposal System | 2.4 | 18.25 Avg. | 2.396 |
| 600,000 | Buena Vista Co., Iowa, Primary Road | 2.5 | 11.85 Avg. | 2.40 |
| 350,000 | Twin Falls Co., Iowa, School | 2.5 | 6.85-7.16 Op.-Avg. | 2.47 |
| 100,000 | St. Joseph, Mo., Refunding | 2.75 | 12.66 Avg. | 2.63 |
| 500,000 | Chicago, Ill., Water-Works System, Certificate of Indebtedness | 3 | 13.66 | 2.72 |
| 500,000 | Richland Co., S. C., School | 3.25 | 12.56 Avg. | 3.15 |
| 165,000 | Valparaiso, Ind., Water Revenue | 3.25 | 8.66-16.75 Op.-Avg. | 3.10 |
| 163,000 | Highland Park, N. J., Refunding | 3.25 | 8.66 Avg. | 3.24 |
| 15,000,000 | Port of New York Authority, N. Y., General and Refunding | 3.25 | 40 | 3.27 |
| 250,000 | Los Angeles Co., Calif., School | 3.5 | 10.75 | 3.36 |

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Successful installations demonstrate the benefits derived: 1. Traffic capacity is increased; 2. Permissible live load is increased; 3. Roadway surface is improved; 4. Stresses are reduced. In short, the bridge is again made good for what bridges are good for. That is sound engineering. ALUMINUM COMPANY OF AMERICA, 2172 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA ALUMINUM

# The City's Legal Rights and Duties

Conducted by A. L. H. STREET, Attorney at Law

## Accidents

Contributory negligence held to bar pedestrian's recovery for tripping over chain fastened to city's sprinkler (Virginia Supreme Court of Appeals: *Tyler v. City of Richmond*, 191 S. E. 625).

City attorney held powerless to waive compliance with statutory requirement for filing notice of personal injury claim within 90 days after accident (Alabama Supreme Court: *McCall v. City of Birmingham*, 174 So. 630).

City held liable for injury negligently caused to municipal ferryboat passenger (Virginia Supreme Court of Appeals: *City of Portsmouth v. Madrey*, 191 S. E. 595).

Motorist held not to have been at fault in colliding with fire-truck at intersection where truck ran past "Stop" light, unless he heard or should have heard warning of the truck's approach (Michigan Supreme Court: *City of Lansing v. Hathaway*, 273 N. W. 403).

Pedestrian held not entitled to recover for injury due to rough condition of alley surface of which he knew (Illinois Appellate Court: *Pearson v. City of Chicago*, 8 N. E. 2d, 556).

Statutory notice of street accident held not vitiated because describing defective iron grating as being 50 feet north of a fixed point, whereas it was 15 feet from the described point, although there was also another grating at the point described (Indiana Appellate Court: *City of Gary v. Wilson*, 8 N. E. 2d, 109).

## Bond Issues

Sewer and water bond issue upheld against contentions of invalidity of proceedings in various respects (Virginia Supreme Court of Appeals: *Ennis v. Town of Herndon*, 191 S. E. 684).

Special assessment bondholders held entitled to restoration of assessments unauthorizedly abated by city (United States Circuit Court of Appeals, Seventh Circuit: *City of Jacksonville v. Bankers Life Co.*, 90 Fed. 2d, 141).

## Condemnation Proceedings

Award as between owner and lessee of damages in street-widening proceeding upheld (Michigan Supreme Court: *In re Widening of Michigan Ave., Detroit*, 273 N. W. 798).

Owner of property near viaduct held not entitled to damages on account of obstructed light and air, and dust and gases resulting from use of viaduct (Maryland Court of Appeals: *Mayor and City Council of Baltimore v. Himmelfarb*, 192 Atl. 595).

## Contracts

City held liable for legal services concerning abandoned sewer project, although there was no formal contract (Texas Court of Civil Appeals: *City of Kirbyville v. Smith*, 104 S. W. 2d, 564).

City, not bridge contractor, held liable for cost of repairing false work that buckled owing to defect in plans and specifications prepared by city's engineers (Pennsylvania Supreme Court: *Canuso v. City of Philadelphia*, 192 Atl. 133).

Statutory power to establish municipal airports held to include power to engage engineering services (Mississippi Supreme Court: *Town of Magee v. Mallett*, 174 So. 246).

## Council Proceedings

City held empowered to adopt ordinance fixing general method of disposing of city property and then to provide for specific disposition by resolution (New York Supreme Court, Erie County: *Kit v. Aszkler*, 296 N. Y. Supp. 351).

## Elections

Convention nominee for municipal office held entitled to mandamus to compel placing his name on ballot (West Virginia Supreme Court of Appeals: *Smith v. Hogan*, 191 S. E. 535).

## Federal Aid

Federal proposal to establish memorial in city on city's paying one-fourth of cost became a contract on such payment's being made, making the city a necessary party to a suit to enjoin Federal authorities from carrying out project (United States Court of Appeals, District of Columbia: *Balter v. Ickes*, 89 Fed. 2d, 856).

## Food Regulations

Ordinance regulating the process of making ice cream sold to public upheld (Alabama Supreme Court: *Gilchrist Drug Co. v. City of Birmingham*, 174 So. 609).

## Licenses

Denial of license to operate a taxicab in New York City upheld under ordinance forbidding granting of additional licenses until a bureau should determine that public convenience and necessity requires them to issue (New York Supreme Court, New York County: *Rudack v. Valentine*, 295 N. Y. Supp. 976).

Non-resident wholesaler making delivery on telephonic orders held not subject to license tax (Georgia Supreme Court: *Wofford Oil Co. v. Town of Willacoochee*, 191 S. E. 128). Nor was a wholesaler who took orders through a traveling salesman (same Court: *Fruit Co. v. City of Dalton*, 191 S. E. 130). But wholesaler selling from trucks without previous orders was subject to license tax (same Court: *City of Jeffersonville v Sinclair Refining Co.*, 191 S. E. 97).

## Municipal Utilities

Ordinance held to sufficiently describe projected light plant and engineering services held properly paid out of proceeds of revenue certificates and not general fund (Illinois Supreme Court: *Hairgrove v. City of Jacksonville*, 8 N. E. 2d, 187).

Power company held not to have established right to enjoin bond issue for competing municipal plant on ground that adequate plant could not be constructed, etc. (Kansas Supreme Court: *Kansas Power Co. v. City of Washington*, 67 Pac. 2d, 1095).

City held liable for damages for breach of water-works construction contract, although exceeding amount of bonds authorized for the project (United States Circuit Court of Appeals, Fourth Circuit: *City of Wheeling v. John F. Casey Co.*, 89 Fed. 2d, 308).

Private power company serving city held without right to question city's power to operate competing plant without state certificate of convenience and necessity (United States Circuit Court of Appeals, Tenth Circuit: *Colorado Central Power Co. v. City of Englewood*, 89 Fed. 2d, 233).

Power company whose franchise had expired held without standing to question city's right to establish municipal plant under state and Federal statutes (United States Circuit Court of Appeals, Tenth Circuit: *Kansas Power Co. v. City of Hoisington, Kan.*, 89 Fed. 2d, 358).

## Office Consolidation

Village held without power to abolish treasurership but enabled to consolidate clerkship and treasurership, subject to incumbent treasurer's statutory right to serve term (New York Supreme Court, Chautauqua County: *Village of Lakewood v. Russell*, 296 N. Y. Supp. 331).

## Police Measures

Ordinance forbidding taxicabs to carry additional passengers without direction of first hirer upheld, and complaint seeking injunction against enforcement on ground of discrimination held insufficient (Illinois Supreme Court: *Jackie Cab Co v. Chicago Park District*, 9 N. E. 2d, 213).

Ordinance forbidding distribution of advertising circulars, etc., without permit upheld (Georgia Court of Appeals: *Lovell v. City of Griffin*, 191 S. E. 152).

Ordinance to punish intoxication on private premises to annoyance of others upheld (California, Appellate Department, Los Angeles County Superior Court: *People v. Beifuss*, 67 Pac. 2d, 411).

Anti-lottery ordinance held not violated by "Bank Night" scheme operated by theater, registration and drawing being open to all persons whether attending theater or not (New Mexico Supreme Court: *City of Roswell v. Jones*, 67 Pac. 2d, 286).

## Public Utilities

Gross receipts imposition under street-railroad franchise held valid charge for use of streets, and no invalid license tax (Virginia Supreme Court of Appeals: *Danville Traction & Power Co. v. City of Danville*, 191 S. E. 592).

City held empowered to permit street railroad to substitute buses for cars (Kentucky Court of Appeals: *Scott v. Cincinnati, Newport & Covington Railway Co.*, 105 S. W. 2d, 169).

Street-railway company held not to have established a right to an increase in fares (New York Supreme Court, Appellate Division: *Yonkers Railroad Co. v. Maltbie*, 296 N. Y. Supp. 411).

## Sewers

Landowner's right to damages resulting from overflow, etc., of sewer determined, in light of their nature, delay in suing, etc. (Alabama Supreme Court: *Howell v. City of Dothan*, 174 So. 624).

## Special Assessments

Where city has breached duty to levy and collect special assessments, assessment bondholders' remedy held mandamus to compel levy and collection, unless that is too late, in which case suit against city for damages is proper remedy (United States Circuit Court of Appeals, Tenth Circuit: *Gray v. City of Santa Fe*, 89 Fed. 2d, 406).

## Streets

Street held properly vacated in statutory proceeding for want of timely remonstrance or proof of public necessity for continuing street (Indiana Supreme Court: *City of East Chicago v. E. B. Lanman Co.*, 8 N. E. 2d, 242).

## Taxation

City Attorney held "officer" whose compensation was exempt from Federal income tax (United States Circuit Court of Appeals, Seventh Circuit: *Commissioner of Internal Revenue v. Schnackenberg*, 90 Fed. 2d, 175).

## Traffic Regulations

Ordinance forbidding "curb service" to patrons of abutting stores, etc., upheld as reasonable traffic regulation (Michigan Supreme Court: *People of City of Dearborn v. Dmytro*, 273 N. W. 406).

Parking-meter ordinance upheld as reasonable police regulation (Texas Court of Civil Appeals: *Harper v. City of Wichita Falls*, 105 S. W. 2d, 743).

## Union Activities

Labor unionists held entitled to enjoin police officers from arresting them on false charges of vagrancy (Texas Court of Civil Appeals: *Gurton v. Williams*, 105 S. W. 2d, 328).

## Water Service

Village held not liable for private property loss due to shutting off water being taken from its hydrant to fight a fire outside the village limits (Illinois Appellate Court: *Miralgo Corporation v. Village of Kenilworth*, 7 N. E. 2d, 602).

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# Municipal and Civic Publications

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## New Horizons in Planning

*New Horizons in Planning.—Proceedings of the National Planning Conference, held at Detroit, Mich., June 1-3, 1937. Published by the American Society of Planning Officials, 850 E. 58th St., Chicago, Ill., 1937. v. + 178 pp. $2.00.*

Four planning organizations participated in this conference—the American City Planning Institute, the American Planning and Civic Association, the American Society of Planning Officials, and the National Economic and Social Planning Association. The scope of planning has been ever widening during the past few years with the realization of the importance of this science in creating a more stable future. Instead of dealing with city planning alone, we find the National Conference paying equal attention to city planning, metropolitan and county planning, state planning, regional planning, and national planning; and at the same time considering all these divisions in relation to social and economic planning.

## Kentucky's Revenue Program

Early in 1936, Kentucky made a number of drastic changes in her revenue program. The tax on gross receipts from retail sales was repealed and replaced by selective excise taxes and further new taxes on corporate and individual incomes. At the same time a new Department of Revenue was formed to take over all tax administration functions previously divided between the State Tax Commission and various other state agencies. This new agency has just published a special report entitled "Results, Kentucky's New Revenue Program" which compares and analyzes the old year (1935) and the new year (1936) and draws tentative conclusions as to the effect of the changes upon the revenues of the state. 38 pp. (Apply to the Department of Revenue, Commonwealth of Kentucky, Frankfort, Ky.)

## Jackson Traffic Survey

Jackson, Mich., enjoys the reputation of being the safest city in its class, as announced by the National Safety Council. In line with that reputation, the city is preparing for improvement by the completion of a survey, published as the "Report on City-Wide Traffic Survey and Proposed Improvements." The project was sponsored by the city at the request of and in conjunction with the Jackson Safety and Traffic Committee of the Automobile Club of Michigan and was carried on by WPA funds and workers under the direction of Jensen, Bowen and Farrell, consulting engineers. The traffic conditions and facilities of Jackson are carefully analyzed and recommendations made as to better use of existing facilities as well as to new improvements. Finally, a "Recommended Traffic Ordinance" is supplied which would be Jackson's adaptation of the "Model Municipal Ordinance" endorsed as a national standard by the National Conference on Street and Highway Safety. 118 pp. (Apply to Jensen, Bowen and Farrell, Engineers, Ann Arbor, Mich.)

## Homestead Tax Exemption

The subject of homestead tax exemption has been under consideration in the Michigan legislature since the introduction of two measures authorizing some form of lump-sum exemption and one based upon a replacement revenue fund. However, the complications of the subject are such that a careful study should be made of the effect of homestead exemption on local revenues, especially in this state where there is no state property tax. A publication by the Detroit Bureau of Governmental Research entitled "Exemption of Homesteads from Taxation" presents the results of homestead exemption laws in other states with conclusions for Michigan's benefit. In view of the absence of factual data, however, it is urged that the legislature provide for a further comprehensive study of the effects of any such exemption on the existing tax structure and of the possible social benefits of such a measure. iv + 30 pp. (Apply to the Detroit Bureau of Governmental Research, Inc., 5135 Cass Ave., Detroit, Mich.)

## Government in Action

*Government in Action.—By Robert E. Keohane, University of Chicago High School; Mary Pieters Keohane, formerly Teacher of Social Studies, South High School, Grand Rapids; and Joseph D. McGoldrick, Department of Government, Columbia University. Harcourt, Brace and Co., Inc., New York, 1937. xvi + 845 pp. $1.84 from* THE AMERICAN CITY.

The extensive teaching experience of the three authors of this volume has led them to feel that there is a better way to present the fundamentals of government to the high-school junior and senior than is employed by the usual text. Consequently, this new textbook is organized with profound attention to two leading educational principles: (1) to understand rather than to memorize, and (2) generalization cannot be taught directly; the student must be given enough descriptive and factual material so that he may form the generalization for himself. Applied to the study of government, these principles suggest an arrangement of material stressing the functions of government rather than the forms of government. Each chapter presents a live problem which inevitably attracts interest, which in turn motivates the reader to learn how and through what structural set-up the important function is accomplished. And as each problem is far from exclusive in its ramifications and administrative organization, the succeeding chapters are constantly repeating fundamental principles which must eventually be absorbed by the student. Illustrations, charts, graphs and diagrams aid greatly in an easy understanding of the text. "Government in Action" is geared to any mentality above the slightly below-average student, as various work projects and additional reading are provided to exhaust any superior ability and initiative. It should prove a teachable and practical textbook.

## The March of City Government

"The March of City Government, City of Cincinnati, 1802-1936," is a short record of the astonishing growth of municipal services. In early days the government played the role of the father, distributing tasks to the members of the household for mutual convenience, and punishing all bad behavior. Today this simple police function is only one of the many fields of specialized activity in which the government is engaged. Increasing popular insistence has made government an active agent of social control in the belief that it can do the job better and at lower cost. In this pamphlet we get a clear picture of this transformation, particularly through a historical list of government accretions from 1802 to the present time. In another section the same list is arranged functionally under such topics as welfare and taxation. A concluding section presents a statistical summary of city values and governmental costs from 1802 to 1936. 32 pp. 50c. (Apply to the Municipal Reference Bureau, City Hall, Cincinnati, Ohio.)

## Governmental Service Areas

Scientific division of labor has been one of the greatest factors in the development of industrial efficiency, but the same device has lagged conspicuously in its application to governmental administration. Local governments are found to be performing services which could be far better handled by larger units, and regional districts are fumbling with services best suited to local administration. The Princeton Local Government Survey has published its third report on local government in New Jersey, entitled "Readjusting Local Services and Areas." The present maladjustments in the allocation of government services are identified, suggestions are made for improvement of the situation, and methods of action are proposed. A set of map miniatures help the reader to visualize the situation in New Jersey. vii + 64 pp. (Apply to Princeton Local Government Survey, Princeton University, Princeton, N. J.)

## City Water and Air-Conditioning

A publication of the Department of Commerce entitled "Effect of City Water and Sewerage Facilities on the Market for Air-Conditioning Equipment" contains valuable data for manufacturers of air-conditioning equipment and for municipal water-supply companies. It is a survey of the actual situation in all cities serving water to 100,000 or more population. Several cities were found to be using their water systems to capacity, warranting immediate limitation of the sales of water-using air-conditioning plants. A larger number of cities are using from 75 to 96 per cent of capacity and must also see some limitation in the near future. In some places sewer systems are not of sufficient capacity to swing many installations of air-conditioning equipment. With the growing demand for this modern comfort, it is important that cities take stock of their resources, for they must safeguard the present supply and at the same time prepare to increase their capacity under pressure of circumstances. 49 pp. 10c. (Apply to the United States Department of Commerce, Washington, D. C.)

## Paving Brick

The National Paving Brick Association has published its 1937 Proceedings, the record of a conference held in Detroit, Mich., on January 28 and 29, 1937. Featured in this record is a report of a year's test of a project constructed with Federal funds by the Ohio Highway Department in which were used some special fillers developed in the Research Bureau of the Association. Discussions follow by various producers of the best-known fillers for brick pavement. Also, an experimental project in the construction of longitudinal brick pavement is described. Additional papers cover the details of design of several specific projects throughout the country and the safety problems of highway design. 71 pp. (Apply to the Association, National Press Bldg., Washington, D. C.)

## General Land Use

The Syracuse Housing Authority has been quite active in the making of studies and the issuing of reports fundamental to the formation of a housing program. Its latest effort is entitled "General Land Use" and is a study of the use of land in Syracuse with an eye to certain characteristics bearing on the location of low-rental housing areas. It is necessary that housing fit properly into the pattern of the community to assure non-interference with other land uses and its own residential stability. A large number of maps aid in the visualization of present land uses and why they were so established. 22 pp. (Apply to the Syracuse Housing Authority, 401 Clinton Sq. Bldg., Syracuse, N. Y.)

## Trailer Regulations

Many cities are being faced with the necessity of regulating trailers and trailer camps in the interests of health, safety and orderliness. A number of ordinances have already been adopted in different parts of the country, and the United States Conference of Mayors has made a collection of these existing regulations for the information of cities that are beginning to study the problem. "Additional Tourist and Trailer Camp Regulations (Including Specimen Ordinances)," Report No. 149, has just been published by the Conference as a sequel to the original "Tourist and Trailer Camp Regulations," Report No. 129. Together they give a pretty complete picture of the subject. Ordinances from Pasadena, Detroit, Seattle, Portland (Ore.), Long Beach (Calif.), Cleveland, Akron and Lansing are reproduced in the new report, and also the San Francisco sanitary code for automobile trailers and the New Hampshire regulations governing the sanitation of trailer coaches and of trailer camps and parks. 54 pp. $1.00. (Apply to the United States Conference of Mayors, 730 Jackson Place, Washington, D. C.)

*Line up of eighteen 1937 Harley-Davidson Police Motorcycles recently delivered to the Minnesota Highway Patrol. Officers standing are: (left to right)—Captains Douger, Larimer, Potvin, and Chief Arnoldy.*

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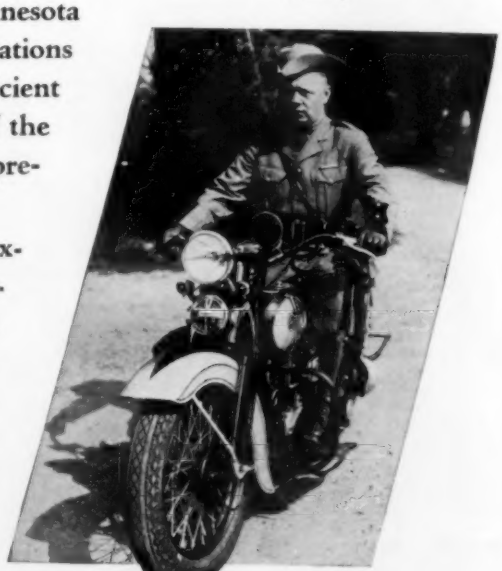

*Trooper Joe Hunt of Syracuse, N. Y. State Highway Patrol.*

# HARLEY-DAVIDSON
## The Police Motorcycle

## Social Administration

*Principles of Social Administration.—By T. S. Simey, Lecturer in Public Administration in the University of Liverpool. The Institute of Public Administration, Palace Chambers, Bridge St., Westminster, S.W.1, London, England, 1937. vii + 180 pp. 10 shillings.*

The social services in which the author is interested are defined to be those which have a "personal" aspect, public services which, rather than providing simply some general environmental convenience or comfort, adjust themselves to the needs of the particular individual concerned. In this category we find "personal" health services, education, unemployment relief, house property management (in public housing), pensions, and various other types of individual assistance. Naturally, the administrative tangle set up in these ever-widening fields of public activity becomes increasingly perplexing. Mr. Simey has undertaken to analyze the problems of political organization entailed in the provision of social services with an eye to bettering the existing administrative practices. He gives, first, the historical background, beginning in the days when local responsibility and local initiative were the only possibility, and coming down to the development within the last 100 years of a centralized administration. Then the separate problems and interrelations of the central department, the local authority and the voluntary association, the three administrative units of modern English government, are discussed. In general, the conclusion gives the greatest promise to administration by the local authority, whose governmental function is thoroughly set forth in this volume.

## Population Trends

Basic population facts are essential to the understanding and the solution of any large civic problem such as housing. Consequently, the Syracuse Housing Authority has published the results of a study entitled "Syracuse Population Characteristics and Trends." It is noted that the city is approaching a stabilized population, as are many other American municipalities. A number of charts and tables present the relevant data in some detail. 15c in stamps. (Apply to the Syracuse Housing Authority, 401 Clinton Square Bldg., Syracuse, N. Y.)

## Real Estate News and Comment

The National Association of Real Estate Boards has established a new line of communication with its members. The pocket-size magazine entitled *Freehold* made its first appearance on July 1, 1937, with the announcement that it would appear twice monthly from then on. It contains real estate news and comment and features a number of articles of practical value to those concerned with real estate. Volume 1, Number 1, gives us a survey of the present real estate market, the articles "Finding Your Best Prospects," by Kenneth S. Keys, "Why England Limits Subsidies," by Charles Morgan-Webb, "Sweat and Dirt," by James C. Downs, and several other items. 10c per copy, $2.00 a year. (Apply to the National Association of Real Estate Boards, 22 W. Monroe St., Chicago, Ill.)

## Bonded Debt of 272 Cities

"The Bonded Debt of 272 Cities as at January 1, 1937," by Rosina Mohaupt of the Detroit Bureau of Governmental Research, has been reprinted from the June, 1937, issue of the *National Municipal Review*. The 12 pages, composed largely of tabular material, portray a tendency of shrinkage in the gross bonded debt of the average city but a slight increase in the largest cities. (Apply to the National Municipal League, 309 East 34th St., New York.)

## Architectural Filing System

The American Institute of Architects has issued a revised edition of its "Standard Filing System and Alphabetical Index for Filing Information on Building Materials and Appliances." A number of new materials and types of equipment have entered the market since the 1930 edition was published. Such a convenient filing system encourages the preservation of reference material in offices where it may be helpful. 47 pp. $1.00. (Apply to the American Institute of Architects, The Octagon, 1741 New York Ave., Washington, D. C.)

## State Planning

The New Hampshire State Planning and Development Commission has reached a new high in publicity with its "Biennial Report, 1936-1937." A definite attempt has been made to catch the interest of the average citizen through simple, straightforward language and a generous use of charts and photographs. The material presented covers the progress of the Commission in its work of coordinating the planning activities of every private, city and state agency. The three phases of this program include the gathering and supplementing of existing data and facts as a basis for a state plan, the analysis and correlation of these data, and, finally, the actual preparation of the state plan. The first stage is now near completion and the second in progress, as indicated by this report. In addition to the report of the Planning Division, there is included in this publication a report of the Development Division outlining the publicity and development work carried on by the Commission in recreation, agriculture and industry. 124 pp. (Apply to the New Hampshire State Planning and Development Commission, Concord, N. H.)

## Community Recreation

*The Architectural Record* has reprinted the section entitled "Building Types: Community Recreation" from the June, 1937, issue. Included are an article by George D. Butler on "Planning for Recreation"; "The Architecture of Leisure," by Oscar Fisher; "The Module," a statement by Le Corbusier; an analysis of recreational requirements for communities; a description of "Demonstration Parks in the Tennessee Valley," by Earle S. Draper; a series of illustrations of examples of various recreational structures; a number of working drawings of sport areas and their equipment; and several other helpful items. This collection of suggestions bearing on present-day community recreation problems should prove stimulating to anyone interested in the subject. 25c. (Apply to Architectural Record, 115-119 W. 40th St., New York.)

## Planning for Life

"Studies of Community Planning in Terms of the Span of Life," by Catherine F. Lansing, demonstrates clearly the importance of proper distribution of apartment sizes and types in a long-range housing program to provide for a representative segment of society from the cradle to the grave. The factors bearing on wise apartment distribution such as the present scale of family sizes, social and economic forces and living habits, and future population trends, are analyzed and supported by figures. 43 pp. (Apply to the New York City Housing Authority, 10 E. 40th St., New York.)

## Detroit Public Schools

"——, of the people" is the title of Part I of the 1937 Report of the Detroit Public Schools. The stories of the three R's, education in the world around the student, social training, fine arts, health, home making, trade education, and night school are all lavishly illustrated and briefly explained. The modern techniques of engaging the self-directing interest of the child and of adjusting school experience to the abnormal child are widely employed in the Detroit schools. 94 pp. (Apply to the Board of Education, 1354 Broadway, Detroit, Mich.)

## New Orleans Today

"New Orleans Today: A City Meets its Problems," is a booklet published in honor of the first 12 months of Mayor Maestri's administration. In August, 1936, New Orleans was in a sad state; credit exhausted, in technical bankruptcy, streets and buildings in bad disrepair, public employees disheartened and fearful, and private initiative at a low ebb. Then a new mayor came sweeping in with promises of a strictly businesslike administration. Mayor Maestri immediately started a rigorous economy program, obtained a reduction in the interest rate the city was paying on its bank loans, and established a program for the city on a strictly pay-as-you-go basis. By August, 1937, the debt had been slashed by $12,000,000, and not a new cent had been borrowed. The city's physical equipment had been renovated from top to bottom, and a large program of new construction was under way. Under this efficient administration New Orleans has regained confidence, and the citizens are cooperating in their government with enthusiasm. (Apply to H. Van R. Chase, New Orleans Chamber of Commerce, New Orleans, La.)

## County Finance and Accounting

County functions have changed considerably within the past few years, and county finance and accounting standards have been correspondingly readjusted. Consequently, the Municipal Finance Officers' Association has answered the need for a written set of these new standards by publication of "County Finance and Accounting Standards." The recommended procedure is outlined under headings of "Financial Organization," "Budgeting," "The Accounting System," "Financial Reports," and "Post-Auditing." The increasing responsibilities of county officials in many parts of the country must necessarily require more careful financial records. 35 pp. 35c. (Apply to Municipal Finance Officers' Association of the United States and Canada, 850 E. 58th St., Chicago, Ill.)

## New Haven's Problems

A most imposing document entitled "New Haven's Problems: Whither the City? All Cities?" has just been written and published by Arnold Guyot Dana, formerly of the editorial staff of the *Commercial and Financial Chronicle*, assisted by Richard E. Lambert, governmental research worker. With changing economic conditions, many cities have lately suffered a loss of strength and prestige as financial and commercial leaders. Among these, New Haven, Conn., the home of Yale University, has not escaped its share of trouble. This author has attempted in a concise text, accompanied by many maps, charts, tables and graphs, to present the main causes of New Haven's present ills and to offer some guiding suggestions for the city's future welfare and stability. The nine main sections of the study are entitled: "Municipal Upset a National Malady"; "Basic Difficulties Due to Limited Area"; "Population and Social Change"; "General Property Tax Base"; "The Shrinking Grand List, Tax Rates, Annual Grand Levies"; "Tax Exemptions a Main Handicap"; "Changing Prosperity Factors and Signposts"; "City Budgets of Income and Expense"; and "Summary, Conclusions, and Recommendations." This work is the product of prolonged research by the author and is well worth serious attention. New methods of approach enhance its value. vi + 244 pp. (text 98 pp.). $10.00; $5.00 to Yale graduates and New Haven residents. (Apply to Tuttle, Morehouse & Taylor, 123 Temple St., New Haven, Conn.)

## Comparative Housing Conditions

The Bureau of Business Research, University of Pittsburgh, has been showing considerable interest in real property and in housing standards with particular relation to Allegheny County. In March, 1937, the Bureau published the "Real Property Inventory of Allegheny County," and recently, in July, 1937, appeared "Graphic Summary of Housing Conditions in Allegheny County, Including Comparisons with Other Metropolitan Areas." The latter is actually a summary of the former study, arranged for comparison with similar data for 36 other areas. The charts and maps are self-explanatory and aim to call attention to housing conditions in Pittsburgh and its environs in a clear, visual manner. 52 pp. (Apply to the Bureau of Business Research, University of Pittsburgh, Pittsburgh, Pa.)

## Other Reports Received

ATLANTA, GA.—Annual Report, 1936. 87 pp.

CHICAGO, ILL.—Report of the Comptroller, 1936. 161 pp.

CHICAGO, ILL.—"Our Public Schools," Board of Education, 1937. 43 pp.

CINCINNATI, OHIO.—Annual Report, Zoning Board of Appeals, 1936. 4 pp.

DETROIT, MICH.—"Accumulated Social and Economic Statistics for Detroit," published by the Detroit Bureau of Governmental Research, Inc., 1937. 20 pp.

MONTREAL, QUE.—Report of the Director of Finance, year ending April 30, 1937. 74 pp.

PHILADELPHIA, PA.—Annual Report, Art Jury, 1936. 21 pp.

SEATTLE, WASH.—Annual Report, Department of Lighting, 1936. 119 pp.

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# Conventions -- When and Where

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

SEPTEMBER 13-14.—SAN JOSE, CALIF. (200)
*California Sewage Works Association. Annual convention.* Sec., Fred D. Bowlus, 202 Law Bldg., Los Angeles, Calif.

SEPTEMBER 13-16.—SAN JOSE, CALIF. (1,000)
*League of California Municipalities. Annual convention.* (Sainte Claire Hotel.) Sec., Richard Graves, City Hall, San Francisco, Calif.

SEPTEMBER 13-16.—BOSTON, MASS. (200)
*Municipal Finance Officers' Association of the United States and Canada. Annual convention.* (Hotel Statler.) Exec. Dir., Carl H. Chatters, 850 E. 58th St., Chicago, Ill.

SEPTEMBER 15-17.—AURORA, ILL. (350)
*Illinois Municipal League. Annual convention.* Sec., A. D. McLarty, 500 E. Capitol Ave., Springfield, Ill.

SEPTEMBER 15-17.—SAGINAW, MICH. (350)
*Michigan Municipal League. Annual convention.* (Hotel Bancroft.) Dir., Harold D. Smith, Univ. of Michigan, Ann Arbor, Mich.

SEPTEMBER 16-17.—FOND DU LAC, WIS. (700)
*League of Wisconsin Municipalities. Annual convention.* (Hotel Retlaw.) Sec., Frederick MacMillin, 114 N. Carroll St., Madison, Wis.

SEPTEMBER 19-23.—WHITE SULPHUR SP'GS, W. VA.
*American Transit Association and Affiliated Associations. Annual convention.* (Greenbrier Hotel.) Gen. Sec., Guy C. Hecker, 292 Madison Ave., N. Y.

SEPTEMBER 20-22.—SANTA FE, N. MEX.
*American Water Works Association—Rocky Mountain Section. Annual meeting.* (LaFonda Hotel.) Sec.-Treas., B. V. Howe, 437 State Office Bldg., Denver, Colo.

SEPTEMBER 20-21.—VIRGINIA BEACH, VA. (500)
*League of Virginia Municipalities. Annual convention.* (Cavalier Hotel.) Exec. Sec., Morton L. Wallerstein, 902 Travelers Bldg., Richmond, Va.

SEPTEMBER 21-24.—POLAND SPRING, MAINE. (600)
*New England Water Works Association. Convention.* (Poland Spring House.) Sec., Frank J. Gifford, 613 Statler Bldg., Boston, Mass.

SEPTEMBER 22-23.—RICHMOND, KY. (250)
*The Kentucky Municipal League. Annual meeting.* Exec. Sec., Carl B. Wachs, Municipal Bldg., Lexington, Ky.

SEPTEMBER 26-30.—NEW YORK.
*American Cemetery Owners Association. Exposition and convention.* (Hotel New Yorker.) Exec Sec., Roy Hatten, 408 Wolverine Bldg., Ann Arbor, Mich.

SEPTEMBER 27-30.—BOSTON, MASS.
*American Association of State Highway Officials. Convention.* (Statler Hotel.) Exec. Sec., W. C. Markham, 1220 National Press Bldg., Washington.

SEPTEMBER 27-30.—FORT WORTH, TEXAS.
*American Institute of Park Executives and the American Park Society. Annual convention.* Exec. Sec., Will O. Doolittle, Box 422, Tulsa, Okla.

SEPTEMBER 27, WEEK OF.—WHITE SULPHUR SPRINGS, W. VA.
*Illuminating Engineering Society. Annual convention.* (Hotel Greenbrier.) Gen. Sec., A. D. Cameron, 51 Madison Ave., N. Y.

SEPTEMBER 27-28.—CLAY CENTER, KANS.
*Kansas Association of Municipal Utilities. Annual convention.* (Bonham Hotel.) Sec.-Treas., L. C. Angevine, Supt. Water and Electric Dept., McPherson, Kans.

SEPTEMBER 27-28.—WINSTON-SALEM, N. C.
*North Carolina League of Municipalities. Annual convention.* (Hotel Robert E. Lee.) Exec. Sec., Patrick Healy, Jr., Capital Club Bldg., Raleigh, N. C.

SEPTEMBER 27-28.—MANDAN, N. DAK.
*North Dakota Water and Sewage Works Conference. Annual convention.* (Lewis and Clark Hotel.) Sec.-Treas., M. D. Hollis, Bureau of Sanitary Engineering, Bismarck, N. Dak.

SEPTEMBER 29-30.—WAUSAU, WIS. (300)
*Wisconsin Chiefs of Police Association. Annual convention.* (Wausau Hotel.) Sec., R. H. McCarty, Kaukauna, Wis.

SEPTEMBER 30-OCTOBER 1.—SCHENECTADY, N. Y.
*American Water Works Association—New York Section. Fall meeting.* (Hotel Van Curler.) Sec., R. K. Blanchard, 50 W. 50th St., New York.

OCTOBER 1-2.—FARGO, N. DAK.
*League of North Dakota Municipalities. Annual meeting.* (Gardner Hotel.) Exec. Sec., Myron H. Atkinson, Bismarck, N. Dak.

OCTOBER 2.—CONCORD, MASS.
*Massachusetts Federation of Planning Boards. Planning conference.* (Concord Inn.) Sec., Gilbert Robinson, 38 Garfield Ave., Medford, Mass.

OCTOBER 4-6.—ATLANTA, GA. (350)
*American Public Works Association. Congress.* (Atlanta Biltmore Hotel.) Exec. Dir., Frank W. Herring, 850 E. 58th St., Chicago, Ill.

OCTOBER 4-8.—OTTAWA, ONT. (300)
*Civil Service Assembly of the United States and Canada. Annual meeting.* (Chateau Laurier.) Exec. Dir., G. Lyle Belsley, 850 E. 58th St., Chicago, Ill.

OCTOBER 4-7.—BALTIMORE, MD.
*International Association of Chiefs of Police. Annual convention.* Secretary, George Black, Wilmington, Del.

OCTOBER 4-5.—SIOUX FALLS, S. DAK.
*South Dakota Water and Sewage Conference. Annual meeting.* Sec., W. W. Towne, State Sanitation Board, Pierre, S. Dak.

OCTOBER 5-8.—NEW YORK.
*American Public Health Association. Annual meeting.* Exec. Sec., Dr. Reginald M. Atwater, 50 W. 50th St., New York.

OCTOBER 5-8.—NEW YORK.
*Conference of State Sanitary Engineers. Meeting.* (Hotel Pennsylvania.) Sec.-Treas., R. E. Tarbett, U. S. Public Health Service, Washington.

OCTOBER 5-7.—OMAHA, NEBR.
*League of Nebraska Municipalities. Annual convention.* (Hotel Fontenelle.) Sec.-Treas., C. E. Beals, 204 Brownell Bldg., Lincoln, Nebr.

OCTOBER 7-9.—ST. PAUL, MINN.
*American Water Works Association—Minnesota Section. Annual convention.* (St. Paul Hotel.) Sec.-Treas., R. M. Finch, 414 Flour Exchange, Minneapolis, Minn.

OCTOBER 7-8.—MINERAL WELLS, TEXAS.
*League of Texas Municipalities. Annual meeting.* (Baker Hotel.) Exec. Sec., E. E. McAdams, 2220 Guadalupe St., Austin, Texas.

OCTOBER 10-12.—KANSAS CITY, MO.
*Institute of Traffic Engineers. Annual meeting.* (Hotel President.) Sec.-Treas., Harold F. Hammond, 1 Park Ave., New York.

OCTOBER 10-15.—PHILADELPHIA, PA.
*American Prison Association. Annual congress.* (Hotel Bellevue-Stratford.) Gen. Sec., E. R. Cass, 135 E. 15th St., New York.

OCTOBER 11-16.—BALTIMORE, MD.
*National Association of Public School Business Officials. Annual convention.* (Lord Baltimore Hotel.) Sec., H. W. Cramblet, Board of Education, Pittsburgh, Pa.

OCTOBER 11-15.—KANSAS CITY, MO.
*National Safety Council. Annual congress.* M'ng Dir., W. H. Cameron, 20 N. Wacker Drive, Chicago, Ill.

OCTOBER 13-15.—CHICAGO, ILL.
*American Municipal Association. Annual meeting.* (Blackstone Hotel.) Exec. Sec., Clifford W. Ham, 850 E. 58th St., Chicago, Ill.

OCTOBER 13-15.—ATLANTIC CITY, N. J. (200)
*Pennsylvania Water Works Association. Annual meeting and convention.* (Haddon Hall.) Sec., Dr. F. H. Snow, Telegraph Bldg., Harrisburg, Pa.

OCTOBER 15-16.—ATLANTIC CITY, N. J.
*American Water Works Association—New Jersey Section. Meeting.* Sec., P. S. Wilson, 325 Washington St., Glen Ridge, N. J.

OCTOBER 15-16.—ELMIRA, N. Y.
*New York State Sewage Works Association. Fall meeting.* (Hotel Mark Twain.) Sec.-Treas., A. S. Bedell, State Dept. of Health, Albany, N. Y.

OCTOBER 18-21.—NEW ORLEANS, LA.
*International City Managers' Association. Annual convention.* Exec. Dir., Clarence E. Ridley, 850 E. 58th St., Chicago, Ill.

OCTOBER 18-21.—GALVESTON, TEXAS.
*American Water Works Association—Southwest Section. Annual meeting.* (Galvez Hotel.) Sec.-Treas., Lewis A. Quigley, 3320 W. Berry St., Fort Worth, Texas.

OCTOBER 19-22.—OKLAHOMA CITY, OKLA.
*International Association of Fire Chiefs. Annual conference.* (New Municipal Auditorium.) Sec., James J. Mulcahey, 16 Franklin Ave., Yonkers, N. Y.

OCTOBER 19-20.—CINCINNATI, OHIO.
*Ohio Conference on Sewage Treatment. Annual convention.* (Netherland Plaza Hotel.) Sec., B. M. McDill, Dept. of Health, Columbus, Ohio.

OCTOBER 20-23.—SACRAMENTO, CALIF.
*American Water Works Association—California Section. Annual meeting.* (Senator Hotel.) Sec.-Treas., Carl M. Hoskinson, Chief Engineer, Div. of Water, Sacramento, Calif.

OCTOBER 20-23.—NEW YORK.
*National Association of Assessing Officers. Annual convention.* Exec. Dir., Carl H. Chatters, 850 E. 58th St., Chicago, Ill.

OCTOBER 21-22.—ST. PAUL, MINN.
*Central States Sewage Works Association. Annual meeting.* Sec.-Treas., G. H. Radebaugh, Urbana-Champaign, Ill.

OCTOBER 24-27.—BUFFALO, N. Y.
*National Association of Commercial Organization Secretaries. Annual meeting.* (Hotel Statler.) Sec.-Treas., R. W. Nelson, Chamber of Commerce, Cincinnati, Ohio.

OCTOBER 25-27.—DODGE CITY, KANS. (400)
*League of Kansas Municipalities. Annual convention.* (Lora Lock Hotel.) Exec. Sec., John G. Stutz, Lawrence, Kans.

OCTOBER 25-28.—BALTIMORE, MD.
*National Tax Association. Annual conference.* (Lord Baltimore Hotel.) Secretary, W. G. Query, South Carolina Tax Commission, Columbia, S. C.

OCTOBER 27-29.—WHITE SULPHUR SPRINGS, W. VA.
*American Institute of Steel Construction, Inc. Annual convention.* (Greenbrier Hotel.) Secretary, V. G. Iden, 200 Madison Ave., New York.

NOVEMBER 1-3.—DALLAS, TEXAS.
*Texas Public Health Association. Meeting.* (Adolphus Hotel.) Secretary, State Board of Health, Austin, Texas.

NOVEMBER 4-6.—OMAHA, NEBR.
*American Water Works Association—Missouri Valley Section. Annual meeting.* (Hotel Fontenelle.) Sec., Earl L. Waterman, Univ. of Iowa, Iowa City, Iowa.

NOVEMBER 4-6.—RICHMOND, VA.
*American Water Works Association—Virginia Section. Annual meeting.* (Jefferson Hotel.) Sec., H. W. Snidow, 601 State Office Bldg., Richmond, Va.

NOVEMBER 8-10.—GREEN BAY, WIS.
*American Water Works Association—Wisconsin Section. Annual meeting.* (Hotel Northland.) Sec., L. A. Smith, City Hall, Madison, Wis.

NOVEMBER 15-17.—ENID, OKLA.
*Oklahoma Municipal League. Annual convention.* Sec., Frank G. Higginbotham, Norman.

NOVEMBER 18-20.—CLEVELAND, OHIO.
*National Association of Housing Officials. Annual meeting.* (Cleveland Hotel.) Sec., Coleman Woodbury, 850 E. 58th St., Chicago, Ill.

NOVEMBER 18-20.—ROCHESTER, N. Y.
*National Municipal League. Annual meeting.* (Seneca Hotel.) Sec., Howard P. Jones, 309 E. 34th St., New York.

NOVEMBER 18-19.—ATLANTIC CITY, N. J.
*New Jersey State League of Municipalities. Annual meeting.* (Chelsea Hotel.) Exec. Sec., S. S. Kenworthy, 808 Trenton Trust Bldg., Trenton.

DECEMBER 6, WEEK OF.—MEMPHIS, TENN.
*The Asphalt Institute. Conference.* M'ng Dir., J. E. Pennybacker, 801 Second Ave., N. Y.

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# Pavement Maintenance Costs

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MAINTENANCE EXPENSE OF THE PRINCIPAL TYPES OF STREET PAVEMENTS, RICHMOND, VIRGINIA

From the Annual Report of the Director of Public Works for the Year 1936

| Type | Total Sq. Yds. | Sq. Yds. Replaced | Total Cost | Unit Cost per Sq. Yd. for all Maintenance | Comparative Index |
|---|---|---|---|---|---|
| **Vitrified Brick** | **282,726** | **16** | **$23.47** | **$0.00008*** | **1.00** |
| Pavement Type A | 297,696 | 36 | 65.34 | 0.00022 | 2.75 |
| Pavement Type B | 1,237,256 | 33,487 | 40,505.67 | 0.033 | 412.50 |
| Pavement Type C | 180,984 | 3,951 | 8,383.54 | 0.046 | 575.00 |

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● Of course, you've always known that of all the pavement types, brick is far less expensive to maintain. But how those official figures for Richmond, Va., give point and definite form to an old truth!

Brick maintenance for 1/575th of the maintenance cost of another well-known type is quite a lot of difference!

*So. 2nd Street was brick paved last year.*

Brick pavements are now in daily use after nearly 50 years of exposure to weather and traffic. With such a long life and such a low maintenance, brick is indeed the greatest of all paving values!

The reason for long life and low cost of brick pavement is due to the fact that it withstands weather as well as traffic. Changes in temperature and atmospheric moisture damage most pavements. Brick is more highly resistant to these natural causes of damage than any other type. In addition it is highly resistant to traffic damage.

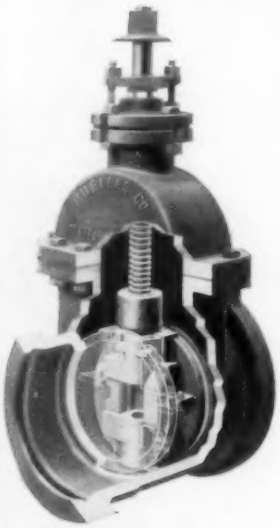
Use vitrified brick on new jobs. Various types of old pavement may be easily resurfaced with brick. National Paving Brick Association (Affiliated with Structural Clay Products Institute) National Press Building, Washington, D. C.

# BRICK

## FOR NEW AND RESURFACE JOBS

# News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings



SECTIONAL AND PHANTOM VIEW OF A MUELLER-COLUMBIAN LOW-PRESSURE GATE-VALVE

## *Low-Pressure Gate-Valves*

Mueller-Columbian improved low-pressure gate-valves are made for test pressures of 50, 100 and 200 pounds. They are of the parallel-seat, double-disc type and are fully bronze-mounted. These low-pressure valves can be furnished by Mueller Co., Chattanooga, Tenn., in sizes from 2 to 72 inches inclusive, each size being furnished in three pressure classes.

These gate-valves can be manually, hydraulically or electrically operated. The manually operated gate-valves are furnished with a 2-inch square operating nut, a handwheel, or a plain or indicating floor stand with an extension stem. They can also be furnished with spur gearing or bevel gearing either with or without grease cases.

Each gate-valve is hydrostatically tested at the factory to twice the indicated working pressure. This test pressure is applied to both ends of the valve in either the open or the closed position. The disc mechanism is so designed that the discs are wedged against the seat rings at four separate contact points near the outside edge of the disc. This is accomplished by means of a top wedge, a bottom wedge, and two side spreaders, all of which are free to adjust themselves upon each other, assuring equal distribution of the seating pressure.

The entire disc and wedging unit is held together by bronze pins passing through interlocking lugs cast integrally with each disc. This construction provides for the removal of the disc assembly as one complete unit.

## *Taste and Odor Control with Activated Carbon*

Activated charcoal or active carbon, or activated carbon, as the material is generally referred to, is a more or less pure form of carbon characterized by a high absorptive capacity for foreign molecules. This characteristic is used effectively in water purification for the removal of tastes and odors. The growth of the use of this material has been so rapid in recent years that the Industrial Chemical Sales Division of West Virginia Pulp & Paper Co., 230 Park Avenue, New York, has issued a well-indexed 80-page booklet discussing the properties and uses of activated carbon. This booklet has chapters devoted to methods of feeding activated carbon, the best points of application in water-works plants and to reservoirs, the quantities of activated carbon to use and the cost of application, and a discussion of the means of establishing the necessary dosage of activated carbon to secure a palatable drinking water from an unpalatable raw water.

There are numerous helpful suggestions regarding the use of activated carbon during flood conditions, during drought conditions, and under normal conditions. Then follows a chapter on the methods which are being used by specific cities for the application of Aqua Nuchar, the activated carbon produced by the Industrial Chemical Sales Division. Copies of this booklet may be secured free by readers of THE AMERICAN CITY, by writing direct to the manufacturer and mentioning this publication.

## *Panama City Installs New Fire-Alarm System*

The city of Panama, R.P., has just purchased from the Gamewell Co., Newton, Mass., through the Compania Panamena Fuerza y Luz, a new fire-alarm central station outfit of sixteen-circuit capacity, additional fire-alarm boxes of the Three-Fold type, and a Diaphone public alarm outfit. The installation will be made by Gamewell engineers.

The existing fire-alarm system was supplied to Panama City by the Gamewell Co. nearly 30 years ago, and boxes have been added from time to time until the system has outgrown the capacity of the original central-station equipment.

## *Pomona Pump Co. Official Dies*

Alexander G. McKenna, Chairman of the Board of Directors of the Pomona Pump Co., of Pomona, Calif., died on July 29 after an illness of several weeks. Although 72 years of age, Mr. McKenna took an active part in his business until his last illness.

With his son, G. A. McKenna, Mr. McKenna purchased the Pomona Pump Co. in 1923, after years of experience in the steel industry. He directed the reorganization of the company's engineering and manufacturing departments and instituted experimental work.

## *New Meter for Fire Lines*

The Flow-OM-eter, recently announced by the Northrop & Cook Co., 50 Church Street, New York, is an accurate low-cost meter designed for 4-, 6- and 8-inch pipe lines, to measure the water used, either legally or otherwise, through fire lines. For installation, only a 2-inch tap is made on top of the pipe. The Flow-OM-eter is set and a gate-box placed over it.

The Northrop & Cook Co., a new one in the water-works field, is made up of Guy C. Northrop and A. T. Cook, both of whom have had long and varied water-works experience. Mr. Northrop is General Sales Manager of the Hydraulic Development Corporation, manufacturer of Hydro-Tite, and Mr. Cook is General Superintendent and Chief Engineer of the Passaic Valley Water Commission, Paterson, N. J.

THE NEW FLOW-OM-ETER FOR FIRE LINES

# "The Use of Calcium Chloride has been ordered and is included in all paving contracts"

## Calcium Chloride in Paving Work at Ottawa

*(From the Canadian Engineer)*

By L. McL. HUNTER
Roadway Engineer, Ottawa, Ont.

THREE years ago the city of Ottawa, Ont., started a program of reconstruction of pavements where street cars operate. These streets were situated mostly in the central or shopping district.

The first street started was Bank Street, between Sparks Street and Gladstone Avenue. This was about 1¼ miles in length. Work had progressed for only one week when the shopkeepers held a meeting to try and have the work "hurried". It was the delay in the setting of the concrete that seemed to worry them. Twelve to fourteen days were to be allowed for this before the asphalt would be placed. It was decided to hasten the "set" of the concrete by using calcium chloride.* Two and a half pounds were to be used to the bag of cement. On the Bank Street job, this was used in liquid form.

Forty-eight hours after the concrete was laid with the calcium chloride in it, it was found sufficiently strong to allow the asphalt to be placed and this contract was completed in less than half the time it was expected to take.

**Since then, the use of calcium chloride has been ordered, and is included in all paving contracts which the city has carried out.**

OTTAWA is not an exceptional case. Hundreds of departments in government, state, county and city work now specify Calcium Chloride "in the mix" for every paving job. If your paving and other concreting specifications do not call for Calcium Chloride integral curing, it will be worth your while to have it included.

Calcium Chloride in the mix develops higher early and greater strength at all ages tested. You get opening strength in less than half the time. You get a more plastic mix that is easier to handle, fills forms better, and gives you better finish. When Calcium Chloride is used in the mix, uniform hydration throughout the entire mass is assured.

Follow A.S.T.M. Standard Specifications (C82-34) for Curing with Calcium Chloride Admixture and refer to the National Bureau of Standards Report (R. P. 782) for detailed test data. Copies available on request.

*United States practice calls for two pounds of Calcium Chloride per sack of cement.

**CALCIUM CHLORIDE ASSOCIATION**

The Columbia Alkali Corporation . . . Barberton, Ohio
The Dow Chemical Company . . . Midland, Michigan
Michigan Alkali Company . 60 E. 42nd St., New York City
Solvay Sales Corporation . 40 Rector St., New York City

# CALCIUM CHLORIDE
## FOR MODERN CONCRETE CURING

## *New Refuse Body Packs and Dumps Horizontally*

In collecting and transporting refuse in a city it is essential that a large payload per truck be available to avoid frequent trips to incinerator or dump. To get the maximum operating efficiency with a modern heavy-duty motor truck, it is desirable that this material be compacted. The Silent Hoist Winch & Crane Co., 762 Henry Street, Brooklyn, N. Y., has devised a new Silentpack refuse truck body consisting of a cylindrical tank within which is an impeller which is used to compact the material, including crates, boxes, etc., at a pressure of about 800 pounds per square foot to a half or third of its normal volume, varying with the refuse being handled. The impeller is also used to empty the tank. The impeller, which is operated by a power take-off from the truck engine, is capable of rotating within and moving lengthwise in the tank, and at the same time is firmly supported to take large thrusts.

At the forward end and on each side of the body is a double-hinged loading door with positive latches to hold it in place. The lowest possible loading height has been made available, in addition to which the broad running-boards facilitate loading from either side. The refuse is emptied by the collector through the door until the opening is well filled. The doors are then shut and the material pushed back out of the way by the impeller. The total time consumed for compacting a fully loaded body does not exceed 20 minutes. When dumping the truck, the tailgate latches are released, which permits the tailgate to swing free of the body. As the load is forced out, the tailgate is free to swing upward as much as is necessary.

For a 5- or 7½-ton truck, the body is approximately 6 feet in diameter and 15 feet long, of which about 3 feet is not available for loading. This leaves about 12 cubic yards of space for compressed material, which equals about 30 yards of ordinary loose refuse. At the top of the body there is a railed platform on which may be placed any unusual items too bulky to go through the doors. The entire job exclusive of the truck weighs about 8,000 pounds.

The unusually large payload, enclosed except for the two loading doors, can be handled by a driver and two loaders, with no need for a man to stand in or above the rubbish. The body does not have to be raised to dump or trim, so there is no danger of striking overhead or ground obstructions or of overturning. The body is rigidly fastened to the chassis. The crushing and unloading mechanism is of rugged construction and is supported direct from the body throughout its length of travel.

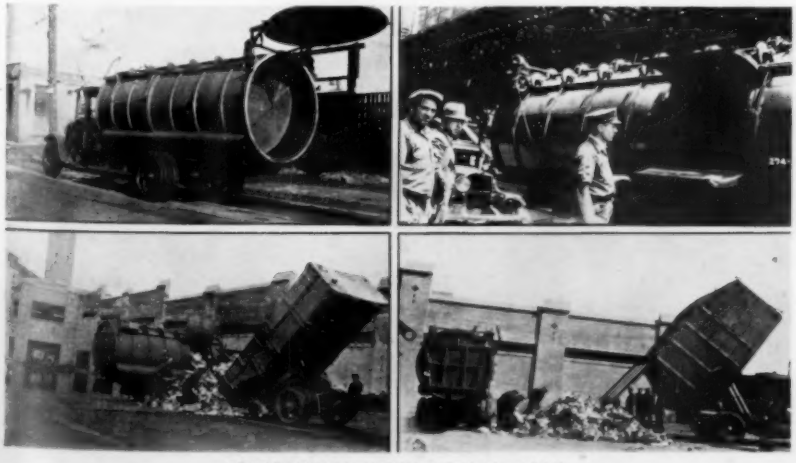
## *Rand Joins Sales Staff of Pittsburgh Equitable Meter*

The Pittsburgh Equitable Meter Co. and its subsidiary, Merco Nordstrom Valve Co., have announced the appointment of C. M. W. Rand, Jr., to their sales staff. Mr. Rand was previously associated with the Columbian Iron Works Division of the Mueller Co., where he served as instructor in the sales of fire hydrants and other products to Mueller representatives on the Pacific Coast. He also represented this company in the Southeast, the Mid-South and Texas.

Mr. Rand in his new position will sell Pittsburgh water, gasoline and oil meters and Nordstrom lubricated plug-valves in Alabama, Mississippi, east Louisiana and western Florida, with headquarters at the Memphis office.

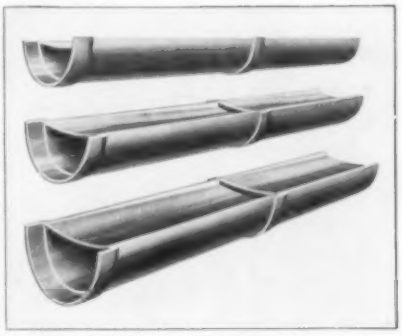
## *Champion Corp. Official Dies*

Leonard Knoerzer, Director and Treasurer of the Champion Corp., of Hammond, Ind., manufacturers of sewer-cleaning equipment, died August 28, 1937. Mr. Knoerzer joined the company as Secretary shortly after it was founded in 1895 by his brother. He was a member of the Indiana Mfrs. Association.



LOW-LOADING REFUSE TRUCK BODY

1. Tailgate raised, showing impeller. 2. One of the two loading doors open. 3. This truck's load was compressed in a third of the Silentpack body. 4. The 24-yard load of this larger dump-truck was placed in half of the Silentpack body



SKIP-PIPE, A NEW DRAINAGE PIPE

## *New C. I. Drainage Pipe*

A new cast iron drainage pipe, claimed to produce results even in excess of other competing drainage pipe now on the market, has been announced by the Dimick-Mosher Products Co., 120 Boylston Street, Boston, Mass. Designed for use in airport drainage, railroad rightaways and freight yards, golf courses and other open areas, Skip-Pipe has shown in accurately scaled models that it takes off from two-and-one-half to three times the water removed by perforated pipe in a given time. The manufacturer reports that in two similar models used to demonstrate the principle, one with Skip-Pipe and the other with standard perforated steel pipe, the model with the new pipe showed complete drainage with the water never rising on the surface. Under similar conditions the water steadily rose on the surface of the other model.

The new drainage pipe is a sloping cradle invert pipe easily installed and readily removed, reset or replaced. The manufacturer states that the need for removing sections of Skip-Pipe for repair, or because of imperfect installation, is rare, for the material is cast iron, known for its wearing quality. The design of the pipe renders clogging improbable, and it would rarely, if ever, have to be cleaned.

Skip-Pipe can be made in almost any foundry, under license, because no costly equipment is necessary. It is stated that in price it is closely competitive with other underdrain pipe.

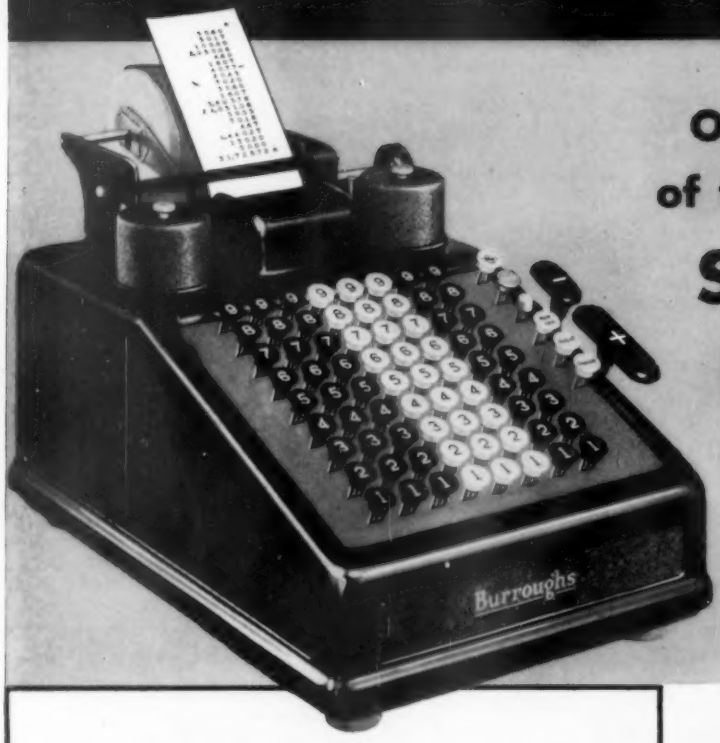
## *Centrifuge Being Installed in Minneapolis-St. Paul Plant*

An American centrifuge to dewater sewage solids, made by the American Centrifugal Corporation, 115 Broadway, New York, is being installed at the Minneapolis-St. Paul sewage-treatment plant. It is planned to operate the machine for dewatering ground screenings, the quantity of such screenings being expected to range from 4,100 to 8,200 pounds of dry solids daily. These screenings will be received by the centrifuge mixed with from 15,000 to 35,000 gallons of water.

The American Centrifugal Corporation has guaranteed that this centrifuge will handle that quantity in a 24-hour period and deliver the dewatered material with not more than 70 per cent moisture.

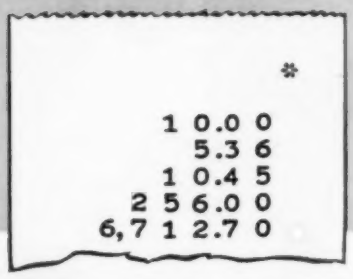
# Burroughs

## SHORT-CUT KEYBOARD




**Only on a keyboard of this type can you do**

## SHORT-CUT FIGURING




### SPEED—with fewer motions

The short-cut way is simple and practical. It saves operations in handling both small and large amounts. With fewer motions, the work goes faster. With less to do, there is less chance for error.

Let the Burroughs representative show you in your own office and on your own work what these savings can actually mean to you. Telephone the local Burroughs office or write for free, illustrated booklet entitled "Short-Cuts that Save Valuable Time."

BURROUGHS ADDING MACHINE COMPANY
DETROIT, MICHIGAN

ADDING, ACCOUNTING, BILLING AND CALCULATING MACHINES
CASH REGISTERS • TYPEWRITERS • POSTURE CHAIRS • SUPPLIES

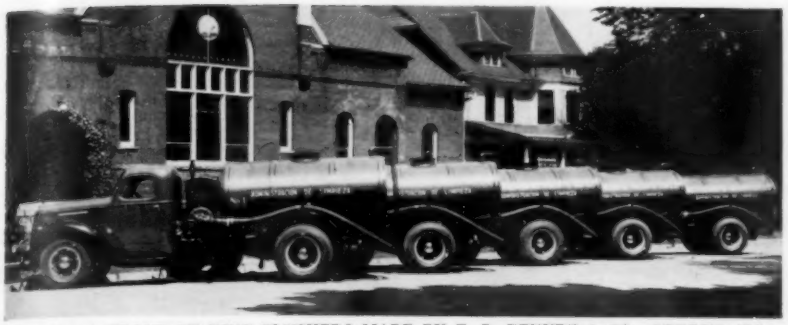
**1 0.0 0** On the Short-Cut Keyboard there is no cipher key. Ciphers always print automatically. The amount 10.00 was written by depressing the "1" and the motor bar—*both in one operation!*

**5.3 6** On the Short-Cut Keyboard two or more keys can be depressed at one time. Thus, 5.36 was written by depressing the "5", the "3", the "6", and the motor bar—*all in one operation!*

**1 0.4 5** Four digit amounts are easily written the short-cut way. The "1", the "4", the "5", and the motor bar are depressed—*all in one operation!*

**2 5 6.0 0** The Short-Cut Keyboard saves operations in writing larger amounts too. The "2", the "5", the "6", and the motor bar are depressed—*all in one operation!*

**6,7 1 2.7 0** Many operations can be saved in listing large amounts on the Short-Cut Keyboard. In this instance, the "6", the "7", and the "1" were depressed in the first operation; the "2", the "7", and the motor bar in the second operation. Thus, this large amount requires *only two operations!*



PART OF A GROUP OF NINE FLUSHERS MADE BY E. D. ETNYRE & CO., OREGON, ILL., MOUNTED ON INTERNATIONAL TRUCKS FOR SHIPMENT TO THE ARGENTINE

These units incorporate right-hand drive used in many foreign countries, and they are equipped with three nozzles and two special sprinkler heads, mounted on front, and special Etnyre fire-fighting apparatus

## *Leader in Clay Products Industry Dies Suddenly*

Oliver W. Renkert, a leading figure in the clay products industry and since 1922 President of the Metropolitan Paving Brick Co., of Canton, Ohio, died on August 6. Mr. Renkert, who was 59 years of age, has been an active figure in the paving brick and structural clay products industries. He has served as President of the National Paving Brick Association since 1931, and when the Structural Clay Products Institute was formed, in 1935, became its first President. He was serving his second term as President at the time of his death.

## *Clark Bros. Co. Merges with Dresser*

Clark Bros. Co., of Olean, N. Y., prominent builders of two-cycle gas engines and compressors for the past 57 years, has merged with S. R. Dresser Manufacturing Co., Bradford, Pa., leading manufacturer of flexible pipe joints used on many gas and water transmission lines.

Both Dresser and Clark have served the gas and oil industries for over half a century. In recent years, Dresser has entered the gas-engine field with a new radial-type gas engine and compressor of its own, of two-cycle design. It is believed that the engine operations of both companies may be consolidated at Olean in the near future.

## *Transite Pipe Plant for West Coast*

Johns-Manville Products Corporation, 22 East 40th Street, New York, has acquired an option to purchase a 50-acre plot of land in Watson, a suburb of Los Angeles, Calif., and plans to start as soon as possible on the construction of the first unit of a new million-dollar factory which will manufacture Transite pipe and conduit, as well as rock wool home insulation.

This is one of two new plants which have recently been announced by this company. Negotiations have been completed for the purchase by Johns-Manville of the Richmond, Ind., plant of the Fibre Conduit Co., which is consolidating its manufacturing activities at its Orangeburg, N. Y., factory. At this new Mid-Western location Johns-Manville plans to produce a new type of low-temperature insulation recently developed.

## *New Carbide Lantern*

A new carbide lantern, Model NJ-1, designed for use as an inspector's lantern by municipal departments, has recently been announced by the National Carbide Corporation, 60 East 42nd Street, New York. This lantern is equipped with a safety flame protector, a heat-resisting glass lens, and porcelain burner tips. Of light weight, it can be used for eight hours on one charge of carbide.

Other features of the lantern include an insulated handle to protect its user against exposed electric equipment, positive feed control and a patented rear light of any desired color. To provide long service and to prevent corrosion, brass has been used in making the water and carbide chambers. Another feature of the lantern is the treatment of the threads joining the upper part of the lantern with the carbide chamber. In order to prevent damage when shaking out the contents of the carbide chamber, the female threads have been inverted and placed inside the chamber.

## *Jersey Becomes V.-P. and Gen. Mgr. of Riddell*

Neil E. Jersey, who has been associated with the W. A. Riddell Corporation, of Bucyrus, Ohio, and its predecessors for the past twelve years, has been elected Vice-President and General Manager of that corporation, to succeed H. F. Holbrook, who died recently.

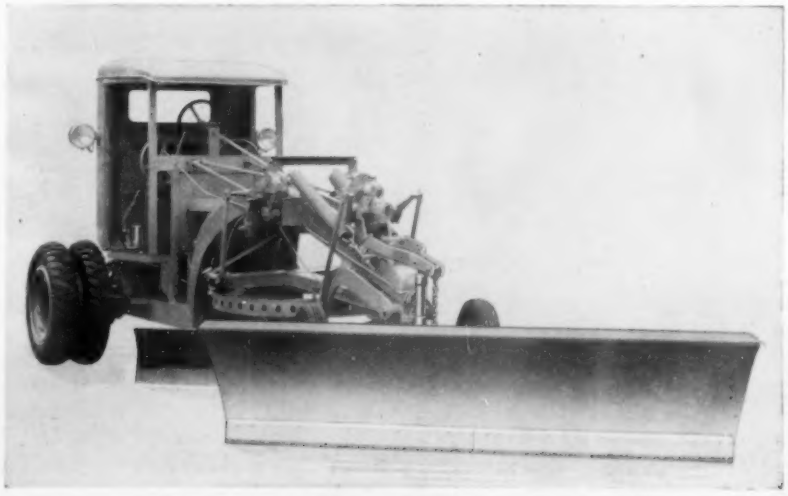
Since 1928 Mr. Jersey has been Manager of the Road Machinery Sales Department, where he has been in active charge of the engineering, manufacture and sales of Warco road machinery. In his new position, Mr. Jersey will have final jurisdiction over all matters pertaining to sales policy, and will be assisted in road-machinery sales by his former Assistant Sales Manager, C. A. Beal, who has been promoted to a newly created position in charge of general office road machinery sales work.

## *A New Motor Grader for Year-Round Work*

The new No. 20 motor grader recently announced by the J. D. Adams Co., Indianapolis, Ind., is designed for light grading and maintenance work on unimproved streets and alleys, for maintaining roads and runways in parks, airports and golf courses, and for snow-removal work.

This new Adams grader is powered by an International I-12 tractor with a 22½-hp engine; and a special chain drive between the tractor axle and the driven axle effects a 65 per cent increase in the pulling power of the tractor, according to the manufacturer, thus enabling the grader to do more work than might be expected of a machine of this size. It has all-welded construction, machine-finished ball-and-socket connections, machined full circle, and other features of the larger motor graders.

Standard equipment includes a 9-foot blade, with 10- and 12-foot blades optional. For winter work, a reversible blade snow-plow is available, as pictured here with the motor grader. It is hydraulically controlled from the cab.



THE NEW ADAMS NO. 20 MOTOR GRADER WITH SNOW-PLOW ATTACHMENT

# This is what happens

When you snip branches off from trees or shrubs year after year nature retaliates by making the growth just that much thicker. The picture illustrates somewhat abnormal conditions but it is an indication of what can and does happen when you go to trimming trees that may be interfering with your lines. The bushy growth illustrated grew from stumps of trees cut down in the fall of 1935.

Isn't it much better, much more satisfactory to use Simplex-FIBREX, the non-inductive tree wire? FIBREX with its tough abrasion resisting non-metallic armor doesn't have to have trees trimmed for it.

Simplex-FIBREX will not rust and cannot rot. It resists abrasion from swaying limbs and branches almost indefinitely and gives practically uninterrupted service.

We will gladly send you a sample to show you how this tough FIBREX Tree Wire is made. May we send it to you?

**Simplex Wire & Cable Co., 79 Sidney St., Cambridge, Mass.**

## Simplex-FIBREX

**The non-inductive, abrasive-resistant tree wire**

## *Graham Joins Research Division of Activated Alum Corporation*

BURTON W. GRAHAM, WHO RECENTLY JOINED RESEARCH DIVISION OF ACTIVATED ALUM CORP.

Announcement has been made by the Activated Alum Corporation, Curtis Bay, Baltimore, Md., of the appointment of Burton W. Graham to the Research Division of that company. Mr. Graham has done considerable research work in water chemistry and will be engaged in the research activities of the Traveling Water Works Laboratory which the Activated Alum Corporation maintains as an important branch of its water-works and sewage service.

## *Mechanical Sewage Aerators*

The American mechanical aerator for use in the activated sludge process of sewage treatment, made by the American Well Works, Aurora, Ill., consists of a mechanism standing in the center of a square, round or hexagonal tank; the mechanism, which agitates, circulates and aerates the liquor in the tank, being composed of a surface mixing well and a circulating pump with a discharge or downdraft tube extending nearly to the bottom of the aeration tank. This pump feeds from the bottom of the mixing well, which is an orifice unit made up of a multiplicity of open slots, a circular wall which forms a trough around the orifice unit, and a well cone which connects the whole to the intake of the circulating pump.

From the circular trough surrounding the mixing well, feed troughs with adjustable weir plates at their ends radiate to draw-off points on the liquor surface. In operation, the liquor flows into the feed troughs and passes to the circular trough, from which it passes through the open slots and jets into the lower water level with considerable force, entraining a great number of minute air bubbles. The circulating pump constantly draws the mixture of air bubbles and liquor down through the downdraft tube, where it is ejected radially at the bottom of the tank. This ejection is a high-velocity jet and serves to sweep the tank bottom and secure distribution. The amount of fine entrained air being circulated can be varied by the plant operator by raising or lowering the lower water level under the orifice unit. The liquor then circulates slowly from the bottom of the tank to the top, where it is again drawn into the feed troughs and recirculated.

The circulating unit is held in place by two foundation bolts on the bridge, and the pump end fits into a tapered joint machined in the downdraft tube. The entire unit can be lifted out or replaced by hand without unwatering the tank or disturbing any under-water connections. Power is furnished by motors especially suited to outdoor all-weather operation direct-connected to the pump shaft.

The tank capacities vary according to the plant requirements, tanks being available for plants serving 1,000 population or under to 20,000 population or larger.

## *A 40-Year History of Engineering*

Burns & McDonnell Engineering Co., Kansas City, Mo., and with offices in Albany, N. Y., Cincinnati, Ohio, and Little Rock, Ark., has reprinted an address presented by R. E. McDonnell, before the Missouri Chapter of Tau Beta Pi, honorary engineering fraternity in Columbia, Mo., last May. This 16-page pamphlet, "Reminiscences of Forty Years of Engineering," has a history of the association of C. S. Burns and R. E. McDonnell, consulting engineers in the Southwest, whose work in sanitary engineering, lighting, power plants and appraisals is widely and favorably known.

## *New Head for Parking Meter Division of O. D. Jennings*

Announcement has been made of the appointment of R. C. Cook, well-known parking meter sales executive, as head of the new Parking Meter Division of O. D. Jennings & Co., Chicago. Mr. Cook, who has a wide knowledge of parking problems and their solution through parking meters, has announced that the Jennings Company has spent 18 months on a field survey of the parking meter problem and as a result has developed a new type of meter which will be on the market very soon.

## *Worthington's Orders Greatest in 17 Years*

Unfilled orders of Worthington Pump & Machinery Corporation, Harrison, N. J., were 81 per cent greater on July 1 than on that date last year, and were at the highest level in 17 years, according to an announcement by H. C. Beaver, President. As a result, the principal plants of the corporation, at Harrison and Newark, N. J., and at Buffalo, N. Y., are operating at a high percentage of capacity, and the recently reopened Holyoke, Mass., plant is expanding production.

## *A New Blade Grader*

A new Model 33 blade grader, similar in general design to the Caterpillar No. 44 and 66 graders recently added to its line, has been announced by the Caterpillar Tractor Co., Peoria, Ill. This machine, which has a standard 8-foot blade and weighs 5,900 pounds, offers unusual flexibility and rapidity of blade movement, according to the manufacturer. The blade can be moved from a ditching to a high-bank cutting position without offsetting the blade on the beams or making any changes in the supporting links, and without the operator's leaving his platform or stopping the tractor.

The No. 33 grader is designed for operation with a Caterpillar RD4 diesel tractor or other tractors of approximately 35 drawbar horsepower.

## *President of Chapman Valve Dies*

Thomas F. Maher, President and General Manager of the Chapman Valve Manfacturing Co., Indian Orchard, Mass., died last month in Providence after an illness of a few days. Mr. Maher, who was well known in the valve manufacturing industry, had been associated with the Chapman company for 28 years, having started in a minor capacity and reached the presidency six years ago.

A HEIL SNOW-PLOW, MOUNTED ON ONE OF THE CITY OF MILWAUKEE'S GMC CAB-OVER-ENGINE MAINTENANCE TRUCKS

*Make City Streets Beautiful*

**DAY or NIGHT**

*with*

# HAZARD ARMORTITE CABLE

UNDERGROUND lighting systems add greatly to the appearance of streets. Hazard Armortite Cable is ideal for this purpose. Armortite is buried directly in the ground without conduits as it is protected against moisture and mechanical injury by submarine insulation, plastic sealing compound, asphalted jute coverings and non-metallic tape armor. These materials are not affected by burial in soil. Investigate Armortite before buying any underground cable.

**HAZARD INSULATED WIRE WORKS**

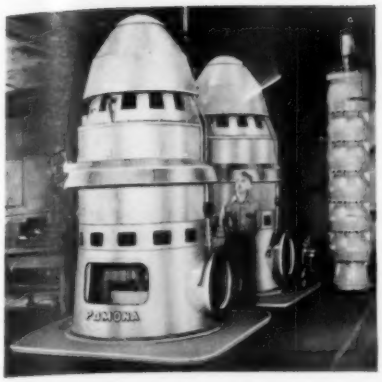
Division of the Okonite Company

WORKS: WILKES-BARRE, PA.

*Sales*
New York Chicago Philadelphia
Atlanta Seattle Dallas Washington

*Offices:*
Pittsburgh Buffalo Boston Detroit
San Francisco St. Louis Los Angeles

Mention THE AMERICAN CITY. It helps!




THE TWO GIANT POMONA DEEP-WELL TURBINE PUMPS RECENTLY INSTALLED IN THE RAY STREET STATION, SPOKANE, WASH.

## *Giant Turbine Pumps Installed in Spokane, Wash.*

The water supply for the city of Spokane, Wash., will be increased 60 mgd under a new program for more and better municipal water. This volume of water will be pumped by Pomona pumps, made by the Pomona Pump Co., Pomona, Calif., from wells of the caisson type which are sunk to productive water strata.

The first unit in this new water-supply project is the Ray Street pumping station, at which have been installed two of the largest deep-well turbine pumps on record. Each of these units comprises a six-stage Pomona 24-inch medium-capacity turbine pump with a 20-inch discharge column and a 4-inch line shaft in 10-foot sections, driven by a Pomona standardized 1,000-hp 20-inch surface discharge electric Unidrive head into which is built a Westinghouse 900-hp, 2,300-volt, 3-phase Type CW wound rotor slip-ring motor operating at 1,175 revolutions per minute. This motor pump head is built entirely of plate steel, cut, rolled, formed and electric-welded into symmetrical fabricated steel mountings and parts which group to present a pleasing appearance as well as combining strength and durability. Each of these units will pump 7,500 gallons a minute against a total head lift of 420 feet with 900-hp motor, a combined total for the two pumps of 15,000 gallons a minute, or nearly 22,000,000 gallons of water a day.

The water lubrication of the pump and discharge column is the same as that used on the standard Pomona turbine pump, and the regular adjustable semi-open type bronze impellers were used. The only change in standard Pomona design was in the size of the parts. The pump bowls and suction bell are porcelain enameled inside to reduce friction losses, and the 20-inch discharge column is coated inside and out with spun hot Hermastic coating. Safety and protective electrical devices have been incorporated in the electric control equipment. Motor bearings and stator iron are safeguarded by temperature control relays which will stop the motor in case of any over-temperature.

Two more of these pumps will be installed later in the Ray Street station, and two Pomona deep-well turbine pumps, each to deliver 6,100 gpm at a total head lift of 340 feet, with 600-hp motor, will be installed in the Hoffman Street pumping station, which is now under construction.

## *Hicks to Handle Crane Publicity*

Frank Hicks, who has had 17 years' experience in newspaper, trade magazine and general publicity work, has recently joined the staff of the Crane Company, manufacturer of valves, fittings, heating and plumbing equipment, of Chicago, to take charge of that company's new publicity service.

## *Pipe Materials for Sewers*

The Clay Products Association, 111 West Washington Street, Chicago, Ill., has issued for distribution to municipal officials a 24-page booklet, "Pipe Materials for Sewers," translated from the original German of Hugo Bronneck, an eminent Viennese engineer. This booklet discusses the materials for sewer pipes and the qualities which resist the attacks of acids, sewer gases and moisture.

Copies may be secured by readers of THE AMERICAN CITY direct from the Clay Products Association, by mentioning this item.

## *Special Enamels for Water-Works Structures*

Ramuc and Glazoflex enamels, which are made by Inertol Co., Inc., 401 Broadway, New York, are claimed by the manufacturer to be fully waterproof, and impervious to lime water, and provide a clean and attractive appearance for water-works structures. Used for the floors, walls and ceilings of filter rooms, chemical mixing rooms, aeration chambers, etc., these enamels give a color-fast hard-wearing coating which is easily cleaned and retains a smooth finish, comparable to tile, for many years.

When applied to the inside of concrete filter boxes and clarifiers, Ramuc enamel is claimed to retard the growth of algae and the formation of mud balls. Glazoflex enamel may be used outdoors as well as inside for pipes, railings, pumps, valves and other steel surfaces.

These enamels come in a variety of types for the various uses to which they may be put in water works, and a number of plants, including the filtration plant at Grosse Pointe Farms, Mich., the new water-treatment plant at Eagle Grove, Iowa, the Ward pumping station, Buffalo, N. Y., and the Lynbrook, N. Y., water tanks, have made use of Ramuc or Glazoflex enamel.

## *New Distributor Handles All Types of Road Bitumen*

A new bituminous distributor, known as Model TS, in sizes of 500 to 2,000 gallons, for truck or trailer mounting, insulated or plain, has been announced by Littleford Bros., 500 East Pearl Street, Cincinnati, Ohio. This new distributor handles all types and grades of road bitumens and is designed for heavy-duty construction service.

The heating system consists of two large LB torch burners, each of which fires directly into a 6-inch diameter U-type return heat flue. Burners provide sufficient heat to raise the temperature of a tankful of material 3 degrees F. a minute. Less than one-third of a tankful can be heated safely.

Control of the pumping system is governed by the patented Littleford single valve, such as that used on the Littleford Model C. With the control hand-wheel set at "Spray," the full pressure of the pump produces instant action at the nozzles. By shifting to "Fill" position, the spray is cut off instantly, and there is no dribbling at the spray bar, because the full suction of the pump sucks back into the tank all material in the lines. To aid in heating, the hand-wheel may be set at "Circulate," and the pump draws hot material off the bottom, putting it back in on top without passing through the manifold bar. A powerful engine and positive 300-gallon Viking rotary gear type pump produce the amount required at the spray bar. The pump and fifth wheel tachometer gage the application accurately, and thermometers register the application temperature. Any rate of application, from 0.1 to 2 gallons per square yard with spray bar lengths up to 24 feet, can be had.

The pumping system of piping is simple. The engine mounting is crosswise, with all accessories easy to reach. The operator's platform is high, to give him full vision. The framework fits any standard truck chassis, without alterations.

THE NEW LITTLEFORD MODEL TS DISTRIBUTOR

# ★ A NEW TECHNIQUE ★
# IN *Street Lighting*

Pedestrians constitute the largest group of automobile fatality victims. When an accident is imminent the pedestrian is frequently too much confused, or too close to danger to save himself. For that reason, street lighting systems must be designed to provide maximum visibility for the automobile driver!

A new technique in street lighting has been developed to meet this need. This new technique provides adequate brightness on the street surface . . . a surface that produces the effect of a lighted background for every obstruction in the driver's path. Thus, through silhouette vision, it is possible for the driver to see persons and objects quickly, and far enough ahead to avoid them.

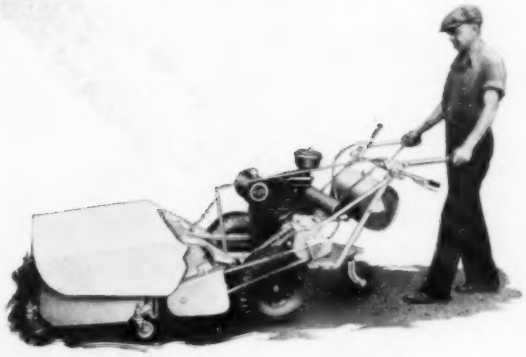
Westinghouse Reflectolux is an entirely new luminaire that has been developed to carry out the objectives of this new technique. Reflectolux provides the kind of glareless illumination and surface brightness so vital to the reduction of nighttime traffic fatalities.

For complete details, ask your local Westinghouse Lighting Specialist for a new book, entitled, "SAFETY with Light;" or address the Westinghouse Electric & Manufacturing Co., Lighting Division, Edgewater Park, Cleveland, Ohio.

*Westinghouse Reflectolux, Sr. New pendant luminaire adaptable to any type of installation both with respect to appearances and utilization.*

WHEN YOU THINK OF *Lighting* THINK OF

**Westinghouse**



THE NEW IDEAL POWER SWEEPER

## *New Power Sweeper*

An entirely new power sweeper, designed for all types of sweeping jobs on large areas which are ordinarily done by crews with hand brooms, has just been announced by the Ideal Power Lawn Mower Co., Lansing, Mich. This Ideal power sweeper is equipped with a 4-cycle single-cylinder engine which furnishes all the power for driving the rotary-type brush as well as the drive wheels. Only one man is necessary to guide the machine and operate the controls which govern the clutches and gas throttle.

The sweepers are equipped with a special brush designed for the particular job, in both light and heavy fibers, depending on the type of work to be done. The machine can also be supplied with a sprinkling attachment when the sweeper is to be used on work where raising dust would be harmful or objectionable. The model illustrated is the straight model of the Ideal Roto Sweeper equipped with dust-box, and is recommended for all large-area sweeping jobs where it is desirable to collect the dirt as it is being swept. Another model of the angle type is also available for jobs where the sweepings do not have to be collected.

This sweeper was developed about a year ago and has been thoroughly tested under a variety of operating conditions.

## *New Backfilling Unit Combined with Pipe Layer*

The new Trackson Anglefiller in combination with Trackson Models PR-30 and PRD-4 Trackson pipe layers is designed as an economical and effective unit for pipe-line construction, reconditioning or repair. The blade of the Anglefiller is easily adjustable for bulldozing dirt straight ahead or at an angle of 30 degrees to either side, cutting a path with ample overlap beyond the outside edges of the tracks. Raising or lowering of the blade is controlled by a single lever, and a safety throw-out prevents damage from over-run in raising. When not in use, the blade may be secured in the raised position, or the complete assembly quickly and easily removed.

The Anglefiller blade is of all-welded construction, heavily reinforced, and is equipped with a reversible cutting edge of heat-treated steel. The heavy A-frame is built of 5-inch H-beams, all welded and substantially reinforced. The pivot hinges are welded directly to the main frame support angles, so that the entire push of the blade is taken by the main anchorage of the pipe layer. The winch mechanism for raising and lowering the blade consists of a cable drum, clutch and automatic brake mounted on an extension of the pipe layer winch shaft. The Anglefiller is available only on pipe layer Models PR-30 and PRD-4, which are mounted on Caterpillar Thirty or RD4 tractors, or for field installation on these models when equipped at the factory with the necessary attaching parts.

Complete information on this combination pipe laying unit is contained in literature which may be secured direct from the Trackson Co., Milwaukee, Wis., by mentioning this magazine.

## *Rockwell, Jr., Returns from Laboratory Tour of Europe*

Willard F. Rockwell, Jr., representative of the Pittsburgh Equitable Meter Co., 400 Lexington Avenue, Homewood, Pittsburgh, Pa., and son of Col. W. F. Rockwell, President, has returned from a laboratory tour of industrial Europe, held under the auspices of the National Research Council, Division of Engineering and Industrial Research, which included trips behind the industrial scenes in England, France and Germany.

Commenting on the tour, its benefits and the conclusions drawn, Mr. Rockwell states: "The problems of scientific research in Europe differ from those in America, largely due to the present policies of re-armament and economic self-sufficiency. The scarcity of certain natural resources, as oil for example, is causing research to probe for new and synthetic materials. The laboratory is also confronted with such problems as stronger steels for armor plate, lighter and stronger alloys for aircraft, more efficient and economical fuels, and many more. However, peace-time research is not being neglected, and a great deal is being done in the cotton, rubber, leather, and building industries, as well as in many others, in the effort to make better products for domestic consumption at a lower cost. The policies of nationalism and re-armament have affected the organization and administration of research. There is greater cooperation among private industries and between private and government research."

## *New Seal for Rotating Shafts*

A new shaft seal for eliminating leakage of gases or liquids around the rotating and oscillating shafts of compressors and pumps has recently been announced by the Syntron Co., Homer City, Pa. This seal has for its main sealing and wearing surface an anti-friction and self-lubricating compound insert in bearing metal of the finest quality.

The sealing head of the bearing metal with its insert is held firmly against the shoulder of the rotating shaft to be sealed by strong spring pressure, which also expands the packing rings, sealing the bearing head to the housing. A feature of this seal is the self-centering ring in the sealing head.

The seal is supplied complete, ready for installation, with seal nose piece, packing rings, compression spring, seal housing and gasket.

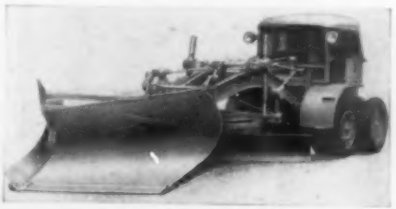
## *New Comptroller for M. H. Rhodes*

M. H. Rhodes, Inc., New York City, manufacturer of Mark-Time parking meters, has announced the appointment of Paul Sternberg as Comptroller in charge of the Finance and Accounting Departments. Mr. Sternberg has had considerable experience directing the financial policies of other organizations, having been associated with the Metropolitan Sewing Machine Co. and later with Wilcox & Gibbs Sewing Machine Co. He will make his headquarters at the factory in Hartford, Conn.

## *New V-Type Grader Snow-Plow*

The new Warco Master V-type snow-plow for use on the Warco Model 35 motor grader, which has just been announced by the W. A. Riddell Corporation, Bucyrus, Ohio, is designed for removing snow from town and city streets and for bucking snowdrifts on township roads. The plows are rigidly constructed for heavy-duty service and may be mounted on Warco graders of 5 to 8 tons in weight.

These snow-plows are sold as an extra attachment and employ the same lifting mechanism as the scarifier attachment. Steel rear crawlers are available.



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# Outdoor Lighting

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## Modern Highway Lighting a Growing Factor

By MICHAEL A. CONNOR
Chairman, State Department of Motor Vehicles, Hartford, Conn.

DURING 1936, action toward the installation of modern high-visibility lighting systems for the protection of the American public motoring or walking on state highways, was apparent in more than half the states in the Union. The principal activity was seen in Connecticut, New York, Ohio, Illinois, Missouri, Minnesota, California, and Washington.

In Connecticut, our newly-organized State Traffic Commission paved the way for test installations at two dangerous state road intersections, at Marlboro and Salem Four Corners. (See THE AMERICAN CITY, November, 1936, p. 111). Late in December, it was announced that the heavily traveled Boston Post Road, main thoroughfare from New York City to Boston, would be lighted for six miles from the New York line to Stamford (issues of January and June, 1937). Favorable results from these installations will undoubtedly lead to the lighting of danger points along the state's entire highway system.

New York led all the states in the number of lighted highway miles added in 1936. About 33 miles of modern lighting were put in operation, including the world's longest stretch of more than 17 miles outside Schenectady (September, 1936, p. 137).

Commissioner Charles A. Harnett, Department of Motor Vehicles, New York, realizes that the state's heavily traveled main highways should be lighted to aid in night driving. Also, Commissioner A. W. Brandt of New York's Highway Department has publicly stated that New York probably needs not to exceed 1,000 miles of lighting along its main traffic routes.

Safety leaders in Ohio began the establishment of 48 mile-long educational highways along dangerous stretches of the state highway system, and provided for the lighting among other safety devices installed. Three of the educational highways were lighted and put in operation in 1936 outside Canton (November, 1936, p. 111), Dayton (December, 1936, p. 123), and Sandusky.

Minnesota, as an initial step in a program for illuminating heavily traveled routes, placed in operation permanent lamps between Minneapolis and Excelsior, and took steps toward the installation of a one-mile stretch near Bemidji (June, 1937, p. 178).

Most of the installations in Illinois and California, the other states where the most activity was apparent, were made at grade and crossroad intersections. However, three main highways in Illinois were lighted for one-mile stretches outside Addison, East St. Louis and Chicago. The most important installation in California was on the new San Francisco-Oakland Bay Bridge (January, 1937, p. 115), reported to be a shining example of the highway of tomorrow, incorporating as it does all safety features.

You all know of some danger spots or stretches along main highways leading into your cities, where night accidents occur regularly. These are ideal places to give lighting a chance to prove its worth. These are the spots where you should arrange for steps leading toward installations providing long-range visibility without dangerous glare.

—From Preliminary Report of Problem Committee on Highway Illumination, American Road Builders' Association.

SAFE LIGHTING OF A TRAFFIC CIRCLE AT OLD BRIDGE, IN NEW JERSEY, AND OF A HIGHWAY THROUGH COLLINGSWOOD PARK
The lighting is controlled by 11-inch Holophane refractors spaced 250 feet on the highway at a mounting height of 24 feet; on the traffic circle the mounting height is 23 feet

# PREVENTED 28 ACCIDENTS in 3 Months

WILLIAM E. RAPP, Syracuse Commissioner of Public Safety says, "Improved lighting in our main traffic arteries has reduced the night accident rate on those streets 55 per cent. On the basis of previous experience, 28 accidents have been prevented in three months with improved street lighting. The movement of traffic has been greatly facilitated, too. The citizens are very enthusiastic over the excellent visibility under the new lighting."

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# Learn It While Driving

*By* JOSEPH MORRISON
Mayor, Easton, Pa.

A LOGICAL time to present safety facts is while people are either driving cars or actually walking on the highway, thus either facing or creating hazards. With that thought in mind, three main heavy-traffic routes—North and South Delaware Avenues (Route 611), and Bushkill Drive—have been set aside as the start of a program to educate day and night those entering or leaving Easton, Pa. This constitutes a municipal precedent which might well be followed widely.

The motorist or pedestrian is notified by metal standards bearing "Axioms for Living" that he has entered a "Safety Educational Highway" where he can learn to be safe. For example, the pedestrian is asked if he walks facing traffic; the driver if he stays in line on curves, uses hand signals, plays fair with other drivers, depresses his lights when passing other cars at night. Easton is not waiting for traffic fatalities (most of them happen at night) to pile up on its main municipal approach routes before taking action. Easton is the first city in the United States to light these routes with a new high-visibility sodium luminaire for the protection and convenience and comfort of travelers at night. This lighting, the largest municipal installation of its kind, consists of 98 units of 10,000 lumens each, installed by the Metropolitan Edison Co.

At dedicatory ceremonies, city and safety officials from New Jersey and Pennsylvania were invited to inspect the high-visibility sodium approach lighting and the "Safety Educational Highways." Those officials who read this article and were not present at the ceremonies are cordially invited to visit us for an inspection at any time.

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(See page 65)

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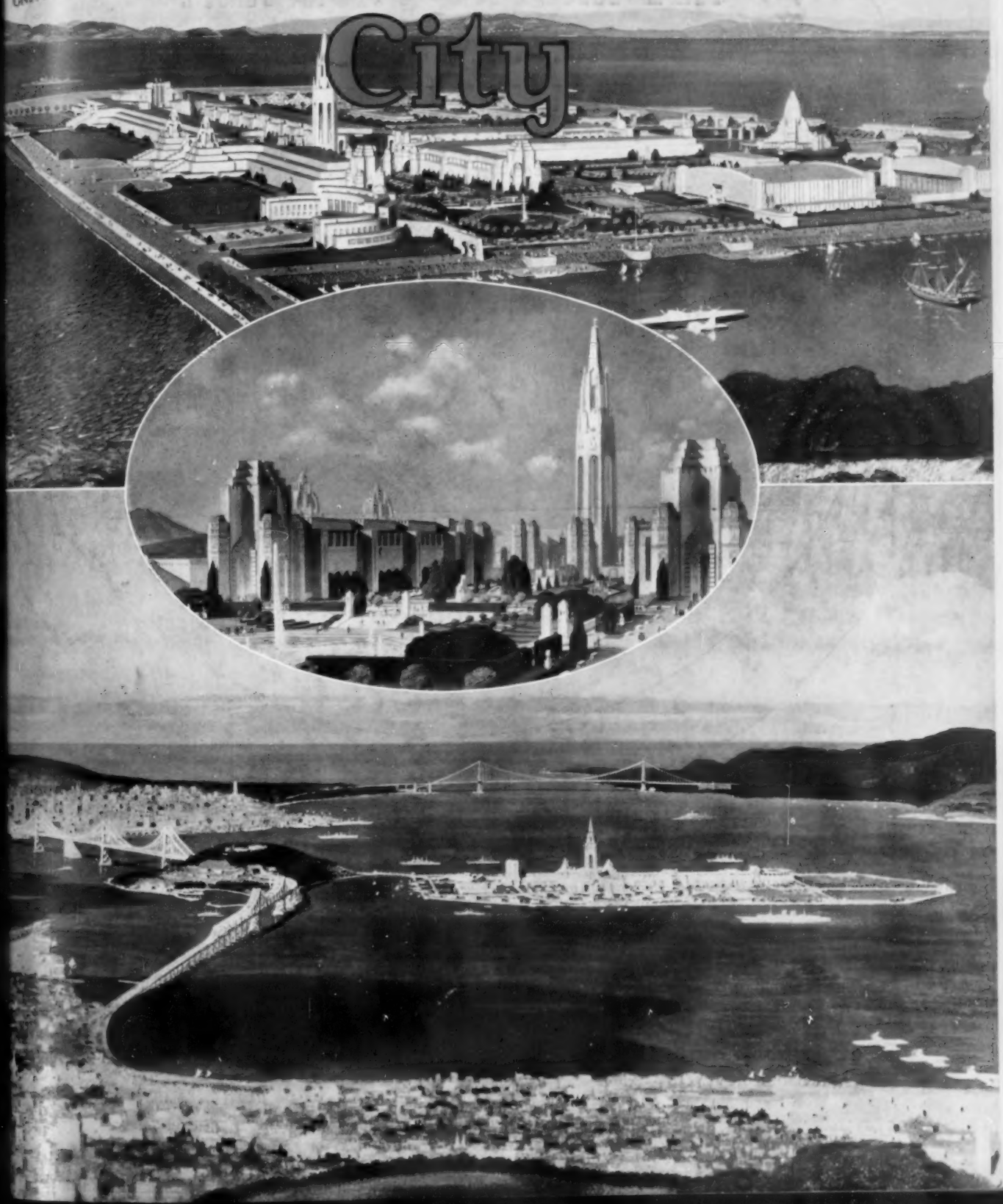
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